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JPRS Report

Nuclear Developments

13 JULY 1987

NUCLEAR DEVELOPMENTS

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NUCLEAR SELF-SUFFICIENCY EXPECTED IN 1988

MB261706 Johannesburg Domestic Service in English 1600 GMT 26 May 87

[Text] The chairman of the Atomic Energy Corporation, Mr (John Marais), says South Africa's nuclear program should be virtually independent of overseas support by next year. Opening the Museum of Science and Technology in Pretoria, Mr (Marais) said the Koeberg power station in the western Cape should be utilizing locally enriched uranium by that stage. He said South Africa had the technology and the skill to process uranium which was readily available to a point where it was suitable for use as fuel in nuclear reactors. The research reactor, Safari I at Pelindaba, had been operated with locally manufactured fuel since 1981.

Mr (Marais) said South Africa could not afford to make indefinite use of valuable coal which SASOL [South African Coal, Oil, and Gas Corporation] needed for its oil from coal process to generate heat. New sources and forms of energy had to be found to ensure survival. He pointed out that experts agree that suitable development could be ensured only if it was drawn from a source that was more powerful than coal or oil.

/9274

CSO: 5100/39

NUCLEAR PLANT WHITE WORKFORCE TO BE REDUCED

Johannesburg THE CITIZEN in English 22 May 87 p 9

[Article by Fred de Lange]

[Text]

THE Atomic energy Corporation at Valindaba, near Pretoria, is to reduce its workforce of mainly White workers by more than 700 before the end of the year.

The first workers will be paid off within the next few weeks and the last will leave the Corporation by the end of the year. An efficiency programme has been started at the Corporation and all the projects at the AEC will be evaluated.

The chief executive of the Corporation, Dr J W L de Villiers, said at a

meeting at Valindaba earlier that the move was necessitated by the 'bad economic conditions'.

The AEC's annual budget is secret, but most of its money comes from State coffers and the sale of enriched uranium and other nuclear products.

It is believed that the Government ordered the Corporation to cut down on its expenditure in line with declared government policy to reduce expenditure.

A spokesman for the Corporation, Mr Nic Ligtheim, told The Citizen yesterday that all the workers who will be made redundant will receive an exceptionally good redundancy remuneration package.

'We cannot say how much it will be, but those who will have to leave will receive at least three month's salary. We will

be trying to make it easy for them to look around for new employment.

He said the Corporation has already started negotiations with other organisations in an attempt to place the highly skilled workers in alternative employment.

The ACE concerns itself mainly with nuclear technology and the enrichment of uranium which is used in mainly power stations for the generation of electricity.

BRIEFS

AEC TO FIRE 700 WORKERS--The Atomic Energy Corporation (AEC) was to scale down its operation in a move which would involve the retrenchment of 700 workers, a spokesman said yesterday. They would include engineers, scientists, technicians and administrative staff. AEC declined to say how large its labour force was, but the retrenchment could affect 10% of the workforce. The spokesman said because of the economic and financial stresses of the past few years, adequate funds to maintain all the corporation's programmes "had not been available". Workers fired would be given three months notice and a "satisfactory" severance package deal. The spokesman said vital programmes would be continued. "The corporation is not shutting down. We merely have to trim our programmes to what is affordable," he said. [Text] [Johannesburg BUSINESS DAY in English 22 May 87 p 2] [Article by Gerald Reilly] /13104

CS0: 5100/41

POLL REVEALS MAJORITY OF CANADIANS OPPOSE NUCLEAR POWER

Ottawa THE OTTAWA CITIZEN in English 14 May 87 p A4

[Text]

A majority of Canadians oppose the use of nuclear power and more than one-third believe all nuclear plants in Canada should be shut down, according to a confidential survey taken for the federal energy department.

The poll places majority opinion squarely in opposition to federal energy minister Marcel Masse, who said last September that Canada sees nuclear power as a "safe, reliable and competitive source of energy."

The survey by Decima Research Ltd. found that 59 per cent of the 2,000 respondents oppose the use of nuclear power, while 42 per cent support its use.

Only 32 per cent support building more nuclear power plants in Canada, and 37 per cent say all nuclear plants should be closed now or phased out.

Seventy-two per cent said there were worried about the safe disposal of waste, 68 per cent said they were concerned about a major accident at a nuclear plant and 61 per cent were worried about radioactive emissions.

Twenty-nine per cent of respondents said the Chernobyl accident in the Soviet Union last year made them change their opinion about the use of nuclear plants, while 71 per cent said the Chernobyl incident did not affect their opinion.

NAVY INTRODUCTION OF NUCLEAR SUBMARINES DISCUSSED

Defense Minister on Need

Toronto THE GLOBE AND MAIL in English 9 May 87 p A3

[Article by Patricia Poirier]

[Text] Canada's navy is in danger of rusting out, leaving it without any submarine capacity when it is obliged to retire its three aging submarines in the early 1990s, Defence Minister Perrin Beatty has warned.

"This is the real difficulty with decisions having been deferred for so long," he told reporters yesterday after a speech to the Conference of Defence Associations.

He suggested that a major vessel replacement program will have to be undertaken so the country can meet its obligations under the North Atlantic Treaty Organization and patrol its three oceans, including the Arctic.

Mr. Beatty said his department has looked at the character and mix of maritime forces that would be affordable and flexible enough to meet all NATO defence tasks. He hinted that his white paper on defence, which will be tabled in Parliament next month, will recommend nuclear-powered submarines.

Nuclear submarines would cost between \$500-million and \$1-billion each.

"Nuclear-powered submarines give us a flexibility that you simply don't have and a survivability you don't have with conventionally

powered submarines," he told reporters. Only nuclear-powered submarines would allow the patrol of the Arctic, he added.

U.S. nuclear-powered submarines are very expensive, Mr. Beatty said, adding that he believes U.S. legislation makes it impossible to sell nuclear submarines to other countries.

There are two potential suppliers of nuclear-powered submarines, France and Britain, which would be more affordable, he said.

Whether Canada chooses nuclear or conventionally powered submarines, it will want production in Canada. "We could conceivably ... have an arrangement where we could purchase a submarine being produced for the country which is supplying the submarines and replace them later with a Canadian-built submarine in order to bring it on stream more rapidly," he said.

"There has been a good deal of speculation lately about whether Canadians could afford one or another type of vessel for its navy. The cost of a nuclear-powered submarine or a Canadian patrol frigate is approximately 1.6 times the cost of a conventionally powered submarine," he said in his speech.

Ottawa THE OTTAWA CITIZEN in English 9 May 87 p A3

[Article by Iain Hunter]

[Text]

Once it has cabinet's blessing, the National Defence Department can order a fleet of nuclear-powered submarines without the safety approval of the Atomic Energy Control Board, a board spokesman said Friday.

Experts have warned that an accident aboard a nuclear-powered submarine could release radioactive and toxic materials more intense than those released by an atomic bomb exploding in Canadian waters.

They also are concerned that the government will sacrifice safety considerations by choosing a smaller boat to reduce the cost of the fleet.

AECB spokesman Hugh Spence said the Atomic Energy Control Act, which requires the board to licence the operation of nuclear reactors in Canada, does not say it is binding on the federal government.

He said there have been discussions within his agency about the subject "and it seems National Defence could carry on and do whatever it wants."

Government sources have said Defence Minister Perrin Beatty is winning his campaign in cabinet to buy a fleet of about 10 nuclear-powered submarines to replace the navy's three Oberon Class diesel-electric boats acquired in the 1960s. The official announcement will not be made until next month, when Beatty presents his "white paper" outlining Canada's military directions beyond the year 2000.

Rear Admiral Charles Thomas, who will become head of Maritime Command this summer, said Thursday the proposal is to acquire eight to 12 nuclear-powered submarines.

Defence officials have argued that nuclear-powered subs are needed in the Arctic because

they don't have to surface for air frequently like diesel-electric submarines and could operate under the ice continuously for weeks at a time.

Thomas said the U.S.-built Los Angeles Class boats, of 6,000 tonnes displacement, are too big for Canadian naval needs.

This leaves the 2,400-tonne French Rubis-class boat and the 4,000-tonne British Trafalgar sub in the running, sources said.

A number of delegations of top military and government officials from France have lobbied Beatty on behalf of the French nuclear-powered submarine.

Allan Kastner, executive vice-president of Energy Conversion Systems Inc. of Ottawa, which is working on a hybrid system using a low-level nuclear reactor as an auxiliary source of power for conventional submarines, said in an interview that shielding the reactor is "a great problem" for boats of all sizes.

He said the Rubis is very small for a fully nuclear-powered submarine with a large reactor and that because of the lack of space, the reactor is "buried" in piping carrying the steam to drive the boat.

Jack Daniel, a leading British submarine designer, said a rupture of the steam pipes in the Rubis could release radioactive and toxic material "more intense than an atomic bomb."

However, Keith Davies, the Canadian representative for the builders of the Rubis argued that the French boat's nuclear system is "inherently safer" than the British system.

Davies said the Rubis is also less costly than the larger British boat — officials have estimated \$300-\$400 million compared to \$500 million per sub.

Ottawa THE OTTAWA CITIZEN in English 2 May 87 p B2

[Text]

According to External Affairs Minister Joe Clark, the government is considering the acquisition of nuclear-powered submarines to enhance Canada's surveillance and control activities in the Arctic. The decision to do so should not be confused with any alleged effect some say it might have on this country's promotion of nuclear arms control and disarmament.

Nuclear power is an accepted and recognized form of energy that many developed countries use, including Canada. Nuclear-powered submarines constitute the only system currently proven for under-ice propulsion.

Canada's current underwater capability consists of three 20-year-old diesel-powered submarines that must be replaced by the mid-1990s. By contrast, the Soviets have 72 nuclear attack submarines, armed with cruise missiles and capable of operating in Canadian Arctic waters and under our ice.

The rationale for Canada to acquire submarines that can operate in this environment is that they would enhance Canada's defence capabilities in the Arctic and elsewhere in both their surveillance and control aspects. They could deter intrusions as well as constitute an effective element of control.

According to Defence Department experts, nuclear-powered submarines could be affordable despite their mind-boggling price — at least \$1 billion each. They could continue in

use until the year 2040, and they would triple the operational capacity provided by conventionally-powered ships that cannot operate under the ice.

Finally, nuclear-powered submarines could be used effectively in both the Atlantic and Pacific oceans. There they would greatly add to this country's surveillance and control capabilities in guarding these more traditional routes.

Defence still has to make the case in much greater detail than this, and answer questions about why under-ice early-warning systems would not be sufficient to do the job. Indeed, Clark promised this week to do just that. He said the case would be made and the clear need established. Finance Minister Michael Wilson remains to be convinced.

The prime concern at this stage is that Canada's established defence and security requirements — as well as sovereignty needs — are not sacrificed because some arms controllers somehow conclude that there is no case for this category of submarine, but only for diesel-powered submarines.

The government must provide the Canadian armed forces with the means to secure and defend this country's right to exercise its laws in areas under national jurisdiction. The Canadian Arctic is such an area. The nuclear-powered submarine could be part of the answer, subject to Clark's promised technical and political — not to mention financial — justification.

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CSO: 5120/9

ANTINUCLEAR GROUPS PROTESTS U.S. NAVY SHIPS' VANCOUVER VISIT

Vancouver THE SUN in English 25 Apr 87 p A3

[Article by Larry Pynn]

[Text] The arrival of four U.S. Navy warships in the Port of Vancouver Friday afternoon—one day before the city's annual Walk for Peace—is both insulting and arrogant, according to antinuclear groups.

"It's deeply negative," said Sheena Lambert, coordinator of Walk for Peace and vice-president of End of Arms Race. "We don't welcome the warships. They carry weapons of mass destruction."

But she added: "We've caught the attention of the navy and military. Our community has made its presence known as a peaceful community and that's something we can all be proud of."

A handful of small protest vessels, including sailboats, inflatables and small runabouts, waited in English Bay and Burrard Inlet for arrival of the warships, which were led by the 112-metre Canadian destroyer escort HMCS Terra Nova.

Ports Canada Police arrested one man and two women aboard a five-metre runabout at 4:05 p.m. for investigation of dangerous operation of a motor vessel, obstruction of a peace officer and impeding the safe movement of a motor vessel in the First Narrows after they crossed the bow of the USS Curts. No charges had been laid by early this

morning but the investigation is continuing, a ports police spokesman said today.

Marion Dahl, spokesman for a new protest group called Save Our Seas, said the three members, Bob Light, Shirley Irwin and Suzanne Rose, placed a string of bleach bottles in front of the oncoming warship.

"It was a symbolic act," she said. "There was no attempt to stop the boat. They attempted to stay outside the 100-metre limit."

Navy spokesman Bill Gerken said the timing of the arrival of the California-based warships — the 126-metre frigate USS Curts and three 169-metre destroyers, the USS O'Brien, Cushing and Harry W. Hill — is purely coincidental. He said the visit is simply for "rest and relaxation" for more than 1,100 crew members.

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CSO: 5120/10

GORBACHEV MESSAGE, CLARK ON MEDIUM-RANGE MISSILES

Soviet Visitor, Gorbachev Message

Ottawa THE OTTAWA CITIZEN in English 4 May 87 p A3

[Text] TORONTO (CP) — An appeal from Soviet leader Mikhail Gorbachev for Canada "to help guide the West" in reaching a deal to eliminate nuclear missiles in Europe was carried directly to Prime Minister Brian Mulroney, the *Toronto Star* says.

In a weekend report, the newspaper quoted special envoy Alexander Bessmertnykh, who visited Ottawa Friday, saying Canadian officials showed "great interest" in Gorbachev's message to Mulroney.

After what was a rare visit in Canadian-Soviet relations, Bessmertnykh said in an interview there is a danger Moscow's proposals will constantly be dismissed instead of being used as the basis for an accord.

"The next few weeks are going to be tremendously important" in attempts to reach a pact to cut

Europe's medium-range missiles, said Bessmertnykh, who met with Mulroney, External Affairs Minister Joe Clark and senior officials from Clark's department.

"Our earnest hope is that Canada will play a role in helping to guide the West to a basically sound response to our arms-control proposals."

He dismissed a suggestion that Gorbachev's bid to enlist the federal government's support was an effort to further divide the western alliance, which is split over proposals to curb European missiles.

"We have no desire, no intention of trying to spoil (Canada's) good relations with its neighbors," said Bessmertnykh, who pledged more consultations in what he said would become a "growing practice of exchanges" between Canadian and Soviet leaders.

Ottawa THE OTTAWA CITIZEN in English 5 May 87 p A8

[Text]

The nuclear arms reduction race reached Ottawa Friday, when special Soviet envoy Alexander Bessmertnykh delivered a special message to Prime Minister Mulroney from General Secretary Mikhail Gorbachev.

One report stated that Gorbachev urged Mulroney to play a broker role in getting the West to accept the Soviet deal to eliminate all nuclear missiles from Europe. This was later denied by the Soviet Embassy, which claimed the visit was but one part of a broader effort throughout the Western alliance to conclude such an accord.

In any event, it's doubtful that either Mulroney or Gorbachev would resort to such mediation at this critical stage in the negotiations. Gorbachev, with the U.S. already on-side, doesn't need a Trudeau-type effort.

And Mulroney would be much less likely than his Liberal predecessor to want to break ranks with his NATO colleagues at this sensitive time — NATO is currently debating the pros and cons of cutting or eliminating short- and shorter-range Euromissiles.

The issues remaining to be resolved both inside the Western alliance and at the U.S.-Soviet negotiating table in Geneva concern verification details, the precise timetable for both sides' withdrawal within the agreed five-year time-frame, and the location of the 100 missiles to remain in Soviet Asia and the U.S. respectively.

Above all, NATO members are still considering the question of shorter-range missiles. What should the Western position be on them? Britain and France appear to be coming around to accepting a zero solution for these, as well as for the longer-range intermediate-range nuclear forces (LRINF). So does Bonn, where the debate has been fast and furious. The other NATO allies are more or less on board already.

Popular opinion in the West is undoubtedly playing an important role. The attraction of eliminating both longer-range and shorter-range missiles cannot be denied. Although those responsible for NATO security would prefer to have some nuclear weapons remain in Europe as a counter to the superior Soviet conventional forces there, Western political leaders must respond to public opinion whenever possible.

In fact, NATO's nuclear option would remain intact because of nuclear weapons remaining in the area on ships, aircraft and submarines manned by American, British and French crews.

The Soviet draft treaty given to Mulroney may need considerable refinement to make it acceptable to all the Western allies. But — based as it is on Western initiatives ignored by Moscow for several years and now suddenly adopted as Russia's own — it should ultimately be merged into an historic agreement acceptable to both East and West.

Clark on INF Proposals

Ottawa THE OTTAWA CITIZEN in English 11 May 87 p A6

[Text]

BADEN-BADEN, West Germany (CP) — Canada supports the elimination of medium-range nuclear missiles in Europe, External Affairs Minister Joe Clark said Sunday.

Clark acknowledged at a news conference wrapping up his eight-day visit to West Germany and three Soviet bloc countries that the recent barrage of Soviet arms proposals has left the NATO alliance struggling to come up with a common position.

He said Canada doesn't want to do anything to disrupt NATO unity and wants any deal linked to reductions in conventional forces.

But he made it clear the federal government endorses proposals for the elimination of medium-range missiles, the so-called zero-zero option.

"Canada's position on those negotiations is that our preference would be for a zero-zero option," he said.

The zero-zero option covers nu-

clear missiles in Europe that have a range of about 1,000 to 5,000 kilometres.

Both the U.S. and the Soviet Union have proposed draft treaties they say call for the elimination of the medium-range missiles in Europe. Negotiators for the two countries are trying to reach agreement on the issue at talks in Geneva.

Clark did not address the more controversial Soviet offer to also eliminate shorter-range nuclear missiles — the so-called double-zero option — which has at least temporarily split NATO.

The United States has greeted this Soviet offer more warmly than some western European countries.

Britain, France and West Germany are leery about the offer and any further cuts in the western nuclear arsenal in light of what some western countries says is Soviet superiority in conventional forces in Europe.

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CSO: 5220/48

SOUTHEAST COAST MOST LIKELY NUCLEAR WASTE DUMP SITE

HK300839 Hong Kong HONGKONG STANDARD in English 30 Apr 87 p 7

[Article by Chan Wai-fong]

[Text] China's southeastern coastal area has been identified as the most probable dumping ground for highly radioactive nuclear wastes from the nuclear power plants to be built in the region.

Geological as well as geographic conditions existing in the provinces of Fujian, Zhejiang, and Guangdong provide a favourable environment for the burial of these wastes, according to a Chinese official.

At present, China is working on the second phase of the Qinshan nuclear power plant located in Hangzhou Bay about 140 kilometres South of Shanghai in Zhejiang Province. And preparation work for the Daya Bay nuclear power plant in Guangdong is continuing.

Mr Chu Zhanchang, an engineer with the Hydrology Department of the Ministry of Geology and Minerals said yesterday that experts from the department had visited Fujian's Danyang area twice and plans for the launching of a comprehensive investigation into the feasibility of the area as a nuclear waste dump-site are to be formulated soon.

He said that the area--along the southeastern coast--is favourable because there are granite formations with simple structures and few cracks.

Aside from geological considerations, Mr Chu was emphatic in saying that other factors, such as transport and population densities in the region also favour its being chosen as the dumping ground.

These factors will be studied and investigated before making a final decision, he added.

Because of its relatively low relief and favourable weather, the coastal provinces are where most of China's population is concentrated.

Along the southeastern coast, the province of Guangdong alone is home to 5.6 percent of the country's population. And some 13 percent of the population (about 130 million people) live in the provinces of Zhejiang, Fujian, Jiangsu and Anhui according to 1986 statistics.

In view of this situation, and with growing urban development, it would seem inappropriate to select localities in this region as permanent rest houses for radioactive nuclear waste.

Mr Chu, however, argued that China's two new nuclear plants--the Qinshan plant and the Daya Bay plant--are located in the region providing an important and favourable factor of proximity.

"We have refrained from choosing localities in the interior because of the anticipated problems in transportation. It is not advisable to transport radioactive materials over such long distances," Mr Chu said.

It is also dangerous to dump nuclear waste from these plants into the sea, he added.

The ministry is considering storing the waste in thick lead-coated capsules and then burying them at a depth of more than 1,000 metres.

A professor from the United States is now working together with experts from the ministry to prepare for a large-scale study and investigation, which, once started, will go on at least for the next decade.

"It is a very complicated issue. And experts in the United States and Canada are also working in the same direction," Mr Chu said maintaining that cautious and thorough studies will be conducted before making a final decision.

And the ministry is also considering conducting the study jointly with the Nuclear Industry Ministry, the highest body overseeing the construction and operation of China's nuclear establishments.

Meanwhile, a Chinese geological academic report--published in 1985 and only available in Hong Kong last month--suggests that the site for the Qinshan power plant may be unsafe.

Chinese geologist Wang Jinxing, one of the report's authors, concludes that all the sites proposed for nuclear power plant construction on the northern side of Hangzhou Bay, including Qinshan, "could be faced with the serious danger of unsafe geological phenomena and should be avoided."

/12232

CSO: 4010/41

HONG KONG CONCERN OVER DAYA BAY NUCLEAR PLANT CONTINUES

Executive Meets Local Group

Hong Kong HONGKONG STANDARD in English 9 May 87 p 3

[Article by Andy Ho]

[Text]

THE dream of Hongkong having a direct role in monitoring the Daya Bay nuclear power project was shattered yesterday at the first press briefing for local reporters at the plant site.

Top executives of the plant ruled out the possibility of setting up a Sino-Hongkong joint advisory body to oversee the building and running of the \$28.7 billion nuclear station.

The best that Hongkong can hope for is to set up a consultative group of its own to liaise with the Chinese authorities.

Mr Zan Yunlong, the general manager of the Guangdong Nuclear Power Joint Venture Co (GNPJVC), said legal complications would prevent a group with Hongkong members inspecting the Daya Bay facilities.

"A monitoring body, as I see it, is a governmental organisation," he said.

Legal basis

"The GNPJVC is monitored by the officially recognised National Nuclear Safety Administration (NASS). This relationship is defined by law.

"But there will not be a legal basis for us to allow an organisation outside our country to monitor the project."

Asked whether this meant there will not be a monitoring body with Hongkong and mainland Chinese members, Mr Ho Chi-kun, GNPJVC first deputy general manager, said "yes".

Mr Zan, however, pledged full cooperation with the future nuclear advisory body to be set up by the Hongkong Government.

"If the Hongkong consultative body makes suggestions we will take the corresponding action," Mr Zan said.

"If they need any information we will furnish them with the data."

Mr Zan stressed that there were other ways for Hongkong people to take part in monitoring developments at Daya Bay.

The Hongkong Nuclear Investment Co, a subsidiary of Hongkong's China Light and Power Co, which is a 25 percent partner in the Daya Bay project, will play an active role from construction to operation of the plant, he said.

Hongkong's mass media and the territory's future nuclear advisory group also will provide positive input into the Daya Bay project, Mr Zan said.

He also reiterated a statement made in March by the Vice Premier, Mr Li Peng, that "China supports the formation of a consultancy body in Hongkong on the safety of the Daya Bay project and that cooperation will

be given in working with this organisation. Matters on this can be worked out through the Hongkong Branch of the Xinhua News Agency."

The Standard reported in February that the Hongkong Government had already approached the Xinhua news agency but is still waiting for a reply from Beijing.

The Government has made clear its intention to establish a local nuclear advisory committee but details are yet to be announced.

The Legislative Council has been pressing the Chinese authorities, since September last year, for "an independent advisory body for nuclear safety and nuclear regulatory control with Hongkong participation".

The latest remarks from GNPJVC officials contradict those made by Councillor Prof Poon Chung-kwong, who said last Tuesday after a trip to Beijing that a high-powered Chinese nuclear committee was considering details on how to let Hongkong people join the "monitoring and the management" of the project.

Prof Poon said last night the NNAS director, Mr Ma Fubeng, had only told him that the Chinese committee was charged with safeguarding the nuclear plant.

Meanwhile, Mr Zan said yesterday

that the Daya Bay project was proceeding on schedule and within budget.

He said the company will map out a contingency plan covering the plant areas.

Evacuation

A 5 to 10 km evacuation zone in the immediate vicinity of the plant will be drawn up.

Evacuation is unnecessary for areas beyond the zone, although other measures, such as radioactivity checks on food and water, will be available to deal with accidents at the plant, Mr Zan said.

The emergency plan will be ready before the first consignment of nuclear fuel is loaded into the nuclear reactors by March 1992.

The GNPJVC, apart from securing the technical services of Electricite de France, will also sign a quality assurance contract with America's Bechtel Corp later this month.

Mr Zan said the Daya Bay installations would be equipped with three complementary control units, one of which will be used for communicating with the outside world in case of an emergency.

New or Second-Hand?

THE Guangdong Nuclear Joint Venture Company will decide later this month whether to use second-hand equipment to build the containment shell for the Daya Bay Nuclear Power Plant.

Mr Peter Littlewood, who oversees the technical contracts for the project, said it was not unusual to use second-hand

facilities for civil engineering works.

But he said the concrete pumps, whether new or used, would meet all safety standards.

A local newspaper earlier reported that a contractor was urging the Joint Venture Company to use substandard pumps for erecting the containment shell.

Reaction To Remarks

Hong Kong SUNDAY STANDARD in English 10 May 87 p 3

[Article by Andy Ho]

[Text]

A PROMINENT Daya Bay proponent and a leading anti-nuclear campaigner, in rare agreement, have both challenged the validity of a recent statement by the chief executive of the nuclear project

Legislative Councillor Prof Poon Chung-kuo and the head of the anti-Daya Bay movement, the Rev Fung Chi-wood, yesterday said officials of the nuclear plant were not in a position to say that Hongkong people did not have the legal right to monitor the Daya Bay project directly.

Mr Zan Yulong, general manager of the Guangdong Nuclear Power Joint Venture Co, said on Friday that there was "no legal basis" for an advisory body with Hongkong members to monitor the project.

Prof Poon, who argued for the project in the Legco Daya Bay debates, called Mr Zan's remarks "disappointing."

"Senior Chinese nuclear officials told me in Beijing last week that a high-powered steering committee, chaired by Mr Li Peng, was considering the matter. No decision had been made at that stage.

"There may have been some developments over the week. But the GNPJVC certainly does not have a central role to play in deciding this issue," said Prof Poon.

Rev Fung, convener of the 117-group anti-Daya Bay coalition, said, "The GNPJVC is the constructor and operator of the nuclear plant which is to be monitored. It is totally inappropriate for its officials to say who should have the right to monitor them."

"Mr Zan's statement shows that the GNPJVC is worried about having an independent body incorporating Hongkong people to monitor its work," he added.

Prof Poon said he would seek clarifications from senior nuclear officials in Beijing when he visits China later this month. He will also raise the issue in the Omelco ad hoc group on Daya Bay on May 21.

The GNPJVC planning and contract manager, Mr Peter Littlewood, was more guarded than his superior on the subject.

Soon after Mr Zan had spoken to the press, Mr Littlewood said: "I do not think we can speak for the Chinese Government. But it is a first principle that we will enable Hongkong people to participate in the development of the project."

"As a company, we cannot speak for the authorities. It is clear that there has to be some relationship between the Chinese and Hongkong authorities. It is up to the

two of them to develop a mechanism for communicating."

Prof Poon also noted that the sovereignty of China should be respected, and Beijing had an absolute right to decide whether to grant Hongkong people a direct role in monitoring the plant, which is to be built on Chinese soil.

Prof Poon said, "Legally speaking, we have very little to argue against the right of the Chinese Government to turn down our request to monitor the Daya Bay plant. But such a decision would certainly undermine Hongkong people's confidence in China."

"I understand that it may create some problems for the Chinese leaders if Hongkong is allowed to monitor the plant, because people in Guangdong and other neighbouring areas may also make the same request."

"But emotional factors," he continued, "should be taken into consideration, especially after one million Hongkong people have joined a signature campaign against the project. It will help to maintain the prosperity and stability of the territory if Hongkong people are allowed to participate in monitoring the project."

Rev Fung touched on the same sensitive issue of confidence.

"The GNPJVC's statement has done much damage to local confidence in China. I am shocked to hear that they even objected to the humble request of the Legco for an advisory body with Hongkong participation," he said.

Meanwhile, the Hongkong Nuclear Investment Co (HKNIC), a 25 percent partner in the Daya Bay joint venture, said that it had an active role to play in the management of the Daya Bay project.

A HKNIC spokesman, Mr Andrew Lo, was yesterday quoted as saying the company was only an "investment vehicle with no management role."

The company yesterday pointed to the fact that there were five HKNIC members on the 17-member board of the GNPJVC. Key management positions, including those of first deputy chairman and first deputy general manager, were filled by HKNIC officials.

Work on Schedule

Hong Kong HONGKONG STANDARD in English 11 May 87 p 3

[Article by Andy Ho]

[Text] Civil works for the nuclear power project at Daya Bay is proceeding apace and the base structure for the first reactor is now complete.

Also the "under-raft" — on which the first of the two Daya Bay reactor units is to be installed — has been laid following a month of concrete binding.

Engineers at the site are now concentrating on forming a water-proof concrete layer for the "gallery" leading to the planned reactor site. Work on the gallery started two weeks ago and has reached the halfway stage.

Civil engineering works for the plant building proper will start in August after the Chinese National Nuclear Safety Administration approves a safety analysis report submitted by the operator of the station — the Guangdong Nuclear Power Joint Venture Co (GNPJVC).

Excavation on the site of the second 900-megawatt reactor unit has also been completed.

General manager of the scheme Mr Zan Yunlong said on Friday the first reactor unit would come on line after final tests are

completed by October 1992. The second unit will be commissioned by July 1993.

The GNPJVC now has a 600-staff roster, including 32 senior officials from Hong Kong and overseas, he said.

The company recently set up an operations department led by a Belgian nuclear expert. In addition, a group of young Chinese university graduates have been going through a special training course which will enable them to man the power plants.

"Those finishing the course with good results will be sent to Beijing and Shanghai to follow a French language course for 10 months," said Mr Zan. "They will then be going to France for further training."

The total Daya Bay budget is US\$3.68 billion (about HK\$28.7 billion), 90 percent of which will be financed by loans arranged by the Bank of China.

By the end of March, the company had invested US\$1.6 billion in the project. The expenditure on completed works amounts to US\$1.6 billion (HK\$12.8 billion).

Meanwhile, the GNPJVC is negotiating with French Cogema and the Chinese Atomic Energy Corp for nuclear fuel supply contracts.

The first consignment of enriched uranium will be loaded into the reactor unit by March 1992.

No Membership in IAEA

Hong Kong HONGKONG STANDARD in English 20 May 87 p 1

[Article by Andy Ho]

[Text]

THE Government has ruled out the possibility of Hongkong joining the United Nations' special agency on safeguarding nuclear energy installations.

The Economic Services Branch has told a Legislative Council ad hoc group on the Daya Bay project that it would be unlikely that Hongkong could obtain membership in the International Atomic Energy Agency (IAEA).

This is the first concrete official reaction to a list of recommendations directed at the Government by a Legislative Council fact-finding delegation on nuclear power generation.

The Government has pointed out to the councillors that Hongkong is not eligible for membership as the IAEA sta-

tute limits its membership to sovereign states.

The officials, however, assured the councillors that the local and Chinese governments will both take into account IAEA guidelines in devising contingency measures for Hongkong to deal with an emergency at Daya Bay.

Both Britain and China are members of the 30-year-old United Nations special agency. Close contacts with IAEA, the officials said, have been maintained through the British Government.

The councillors' recommendations were first put forward last September shortly before the major contracts for the \$28.7 billion Daya Bay nuclear investment were sealed.

The legislators had urged the Government to seek formal membership with the IAEA as a means "to establish international links with nuclear safety agencies and to obtain information and advice on nuclear safety".

The Economic Services Branch, charged with coordinating all local Daya Bay matters, has prepared a set of papers for the next meeting of the Legco ad hoc group tomorrow.

In the papers, the Government also told Legco members that it is awaiting a reply from the Chinese authorities on the proposal to set up a Sino-Hongkong joint advisory body to monitor the project.

Once the Chinese views are known, the Government will

start looking into the composition of a parallel local independent body to be set up for advising the Government on nuclear energy issues.

But the branch officials warned that the local advisory group would be different from those in Japan, France and the United States.

Unlike those places, the Daya Bay nuclear station that the Government has to deal with is on Chinese soil outside the jurisdiction of Hongkong.

Government Paper Reported

Hong Kong HONGKONG STANDARD in English 22 May 87 p 2

[Article by Andy Ho]

[Text]

THE Government may seek the power to order evacuation in the event of an accident at the Daya Bay nuclear reactor.

This is one measure contained in a restricted official paper.

The paper shows that the Government may seek legal powers to take emergency action should there be an accident at the site.

The fact that the authorities are contemplating evacuation is contrary to repeated official assurances that no such measures will be needed.

A Government spokesman said last night that the Government was not currently seeking such legal powers.

The paper, dated January 22, was prepared by the high-powered Government committee for contingency planning.

It was circulated to members of the Omelco ad hoc group on Daya Bay.

The committee, which deals with contingency planning for serious accidents and natural disasters, has recently been upgraded to cover Daya Bay.

The paper states that it is most unlikely that the whole of Hongkong will be affected in an emergency but extreme measures may be needed in certain areas.

The paper is in line with statements by the director of Electrical and Mechanical Services, Mr Graham Osborne.

He has said he believes parts of the New Territories near the border may need an evacuation plan.

The paper points to the "psychological impact on the population in every incident, no matter how minor, that occurs at the nuclear plant."

But Mr Wong Po-yan, convenor of the ad hoc group, yesterday denied there was any consideration of evacuation in the paper. "I have not heard of any proposal related to evacuation," he said.

Mr John Wilson, Principal Assistant Secretary for Economic Services (Special Duties), said the Government had never considered evacuation as a possibility.

The deputy convenor, Councillor Chung Pui-lam, said he had not read any evacuation-related proposals.

But at least two councillors in the ad hoc group confirmed that the recommendation is contained in the paper.

Mr Wong said the Government may seek legal powers to enable it to implement certain emergency plans.

"Such legal power does not necessarily mean the Govern-

ment is thinking of evacuation," Mr Wong said.

"The Government, for instance, may need to be empowered to handle foodstuffs contaminated by radioactivity."

Mr Wong's example is one of the five areas listed in the paper. Other actions that may lead to "legal problems" are:

- Ordering members of the public to remain indoors.
- Offering the public radio protective prophylactic drugs.
- Ordering the public to take shelter.

The paper was not discussed at yesterday's session as members preferred to wait for a British consultancy report on Daya Bay contingency planning which is expected by August.

The first consignment of nuclear fuel arrives at Daya Bay in 1992.

The councillors were briefed yesterday on the public nuclear energy education programmes of the Government and the Hongkong Nuclear Investment Company, a 25 percent partner in the Daya Bay project.

The Government spokesman said the paper set out International Atomic Energy Agency guidelines on the legal considerations that contingency planners should take into account.

He said the Hongkong Government consultants on contingency planning, the United Kingdom Atomic Energy Authority, will take into account IAEA guidelines where appropriate.

UK Plan Soon

Hong Kong SOUTH CHINA MORNING POST in English 1 Jun 87 p 4

[Article by Frank Choi]

[Text]

THE United Kingdom Atomic Energy Authority is due to complete its report at the end of August on the contingency plan for Hongkong in case of an accident at the Daya Bay nuclear power plant.

The Legislative Council group on the power plant met last week to discuss a number of issues, including the contingency plan.

Group convener Mr Wong Po-yan said the group had talks with the administration about a proposal to establish advisory committees on the contingency plan and safety in Hongkong. No decision has been made.

The establishment of a joint Sino-Hongkong advisory committee to monitor the plant is considered to be out of Hongkong's control because negotiations with the Chinese would have to go through British diplomatic channels.

Following the meeting Mr Wong said at this stage the Government had no plans to introduce laws forcing evacuation of residents or confiscation of agricultural products in the case of nuclear mishap.

Meanwhile, a Government spokesman denied a report claiming the Government was seeking the legal power to take emergency action in the event of nuclear accident at Daya Bay.

The spokesman said the report was quoting from an International Atomic Energy Agency paper which outlined the legal guidelines contingency planners should consider.

He said the Government's consultants on contingency planning would be taking the guidelines into account.

Mr Wong also said the councillors had suggested to the administration that it should reveal at least the less sensitive parts of the Lazard report on the financial implications of the Daya Bay project.

The Hongkong Nuclear Investment Company would soon open up its information centre where the public could acquire materials concerning nuclear energy, and there was also plans to open several mobile information centres to step up public education on the matter, he added.

U.S. Security Consultant

Hong Kong SOUTH CHINA SUNDAY MORNING POST in English 31 May 87 p 3

[Text]

AN American company has signed up as a security consultant for the Daya Bay nuclear power plant.

The Bechtel North American Power Corporation and the Guangdong Nuclear Power Joint Venture Company signed a contract in Shenzhen on Friday, according to the New China News Agency.

Bechtel will send experts to work at Daya Bay and with equipment suppliers in Europe.

It will participate in all work related to quality and help train Chinese quality control person-

nel, the agency said. The contract will expire soon after the nuclear plant goes into operation around 1992.

"It is a major measure to strengthen and improve the security of the Daya Bay nuclear station," said Mr Ma Fuhang, a director from the Ministry of Nuclear Industry.

The \$29 billion plant, being built with French and British technology only 50 kilometres from Hongkong, is one of two nuclear power stations now under construction in China.

Following the nuclear disaster at Chernobyl in the Soviet Union in April last year, citizens groups in Hongkong launched a protest campaign about the presence of the plant so close to the territory.

The Chinese government has repeatedly stressed that safety and quality control at the plant will be assured.

But it has rejected suggestions that Hongkong representatives be included on an advisory body being set up by China to monitor safety at the plant.

Chinese Vice-Premier Mr Li Peng has suggested that Hongkong set up its own organisation but this has been interpreted as a consultative body rather than one with a monitoring role.

The chairman of the Hongkong Nuclear Investment Company, Mr William Stones, said last month that the joint venture partners, as well as the Chinese government, were fully aware of the importance of nuclear safety and environmental protection.

About 70 per cent of the energy produced by the plant will be delivered for use in Hongkong.

/9274

CSO: 5150/0156

OFFICIAL ADMITS MINOR BREAKDOWNS AT NUCLEAR STATION

Sofia SOFIA NEWS in English 27 May 87 pp 1, 6

[Text]

- How true is *Der Spiegel's* report on the Bulgarian N-plant?
- Accidents in 1982 and 1986 • The lessons of Chernobyl
- No c.h. for 50,000 new homes • Regulated power supply: a must

Recently, Radio Free Europe and the West German *Der Spiegel* magazine mentioned some accidents and critical situations in the Bulgarian nuclear power plant at Kozlodou. SN's Lev Kokushkin sought details and comment from Prof. Nikola Todoriev, President of the Power Engineering Association.

"I know about these reports, and I also have here the issue of *Der Spiegel* with its extensive article discussing the safety of the old generation pressurized-water reactors," Prof. Todoriev said. "The common source of all these reports is a development by three Western experts who, in turn, used the reports sent to the IAEA in which every state cites, among other things, the accidents in its nuclear power plants.

"I must admit that the facts about our power plant in Kozlodou, cited by *Der Spiegel* and Radio Free Europe, are true. Still, there is nothing sensational in them. In 1982, there was, indeed, a breakdown in the safety valves in our nuclear power plant, as a result of which a small amount of radiation did leak on the premises of the plant in the course of several hours. The accident was brought under control very soon and did not have any serious consequences.

"We had another problem last December, when the post-heat-exchanger conduit collapsed

seven kilometres away from the plant. Some experts then suggested that we shut down the plant. Having carefully assessed the pros and cons, we turned down the power and repaired the breakdown. Why did we not shut down the reactors? In the first place, things were not that critical, and then, an outage of 1,700 megawatt generating capacity would have compelled us to cut the power supply to homes or industries for six hours a day right in December." Of course, in an emergency, all reactors would be shut down immediately."

Mr Todoriev, in Kozlodou there are reactors which have been designed 20 or 25 years ago, and safety standards have become much more stringent since then.

"We installed these reactors in 1974. They withstood the big earthquake in 1977 with excellent marks. Irrespective of this, we updated them thoroughly and thus enhanced considerably the safety of our nuclear power plant. We are

now building another two reactors, each with a generating capacity of 1,000,000 kilowatts. They were designed in 1980. After the Chernobyl accident, we introduced additional safety improvements, which is one reason why reactor No. 5 is going into operation behind schedule.

"Let me emphasise that now radiation levels in the town of Kozlodou and in the area of the nuclear power plant are 4.5 times lower than those in Sofia. Certainly, background radiation in the capital is far lower than the maximum permissible doses.

What would you say about the present state of the Bulgarian power industry in general?

Last winter was unusually long-drawn and cold. And yet, for the first time in many years, our power industry overfulfilled considerably its state plan target in the production of electric energy. In just four months last year, nearly 800 million kWh of electric power were generated in excess of the respective figure in the year-earlier period. This amounts to an annual growth rate of almost 6 per cent. Thus, the Power Engineering Association has posted excellent results. I am firmly convinced, however, that our national economy can hardly be proud of this. This 6 per cent growth lags behind the enhanced performance of our industry which remains energy

inefficient. It turns out that we have forgotten too soon the 1984-1985 crisis and we decided that energy resources are inexhaustible.

But after all, there are new electric power stations under construction aren't there?

"Unfortunately, we haven't commissioned a single kilowatt of new generating capacities over the last few years. The Bulgarian power industry managed to steady itself after the crisis and even to put aside a definite reserve precisely because of the repaired facilities. But this reserve is very small. Under the CMEA standards, it should take up 22 per cent of the installed capacities, and in the winter we were often left with 3 per cent.

"This year, too, we will be late in starting new power stations. Unit No. 5 of the Kozlodouzi Nuclear Power Plant is due to come on stream in September, but this will hardly be achieved. There is a delay in the construction of all thermoelectric stations in the large

cities. As a result, the 40 to 50 thousand newly built homes will be left without central heating. Which means, that an additional 400 megawatts of electric power will be consumed in the winter. To say nothing of the series of new large industrial energy consumers. Due to all this, next year we will most probably use up even the small reserve in power generation we have now.

And what way out could you suggest?

There is only one way out: a regularly power supply to the households, to the utility services and especially to industry. A strict state control of the use of electric power is a worldwide practice. A number of appropriate measures have been worked out in this country over the last few years, but they have not yet produced the desired result. And in the case of Bulgaria, which does not have rich energy sources of her own, a wasteful use of electric power is simply inadmissible."

/9274

CSO: 5100/3018

AUTHORITIES DISMISS RUMORS OF RADIATION DAMAGE

Sofia RABOTNICHESKO DELO in Bulgarian 19 May 87 p 2

[Report by Bulgarian Telegraphic Agency with answers to readers' questions: "Radiation Situation in Bulgaria--Uneasiness Is Unwarranted"]

[Text] Sofia--18 May (BTA). During the past month the subject of radiation has once more aroused heightened interest among the Bulgarian public. This is also indicated by the letters received at the Bulgarian Telegraphic Agency. They contain questions about the radiation situation in the country and about the measures taken to protect the population. There are many questions as to whether there is any danger in the consumption of specific food products. A natural anxiety and concern are expressed for the health of the younger generation.

To respond to this justifiable public interest, BTA reporters sought out information and competent opinions from the standing governmental Commission for the Control of Natural Calamities and Major Industrial Accidents, the Ministry of Public Health, the Committee on the Use of Atomic Energy for Peaceful Purposes, the specialized laboratories of the Agricultural Academy and of the Institute of Roentgenology and Radiobiology, State Medical Control, State Veterinary Medical Control, and other institutes.

We present answers to the most frequently asked questions.

[Question] Is the radiation in Bulgaria higher than usual?

[Answer] At the end of July 1986 when the principal contaminant--iodine-131--had decayed, the radiation gamma-background in the country had returned to its natural range, which is 0.02-0.03 mr per hour. From then till now radiation contamination has been analyzed as the slowly decaying isotopes of cesium-134, cesium-127 and strontium-90 that had got into forage plants and via them into some food products of animal origin. The calculations of the specialized laboratories show that the contamination of these products for the country as a whole is far below our permissible standards.

Only in individual, scattered lots of sheep's milk and lamb, produced in isolated regions of Southern Bulgaria, was contamination found approximating and exceeding the set standards. But these products are not allowed in the trade network so there are no grounds for alarm.

[Question] What are the radiation standards for food products in Bulgaria as compared with the standards in other countries?

[Answer] The standards in Bulgaria for permissible levels of radioactive contaminants in food products are significantly lower than in other countries, for example, those in the Common Market. Last year the radioactive irradiation of our population was approximately half the permissible dose.

A comparison of the standards for this year adopted in the Common Market and in our country shows that the Bulgarian standards are twice to five times as low, which means that they are much stricter. In addition, in Bulgarian a special standard is in effect for baby food.

[Question] What measures are being taken to protect people from radiation?

[Answer] The principal measure, taken as early as May 1986, was to establish nationwide radiation monitoring. Subject to monitoring are milk, meat, grain, fruits and vegetables, in order to prevent the consumption of products contaminated in excess of the set standards. Permanent radiation monitoring of baby food production has been established. All the actions that have been taken are aimed at one goal--reducing to the minimum possible the annual internal irradiation of the population.

It should be known that following the Chernobyl' atomic power plant accident three authoritative organizations--the International Atomic Energy Agency (IAEA), the UN's Food and Agriculture Organization (FAO), and the World Health Organization (WHO)--determined a permissible per-capita irradiation dose. During the first year after the accident this limit was 5 millisieverts, and during the second about 1 millisievert. With the measures that have been taken and carried out, Bulgaria has guaranteed that it will not be exceeded.

[Question] Is it true that food products returned from exports due to radioactive contamination have been sold to the population?

[Answer] From last year to the present only a few lots have been returned, and these were not allowed into the market. Food products, regardless of their origin, once radioactively contaminated over the standards accepted in our country, are not permitted in the trade network. For this reason the sale of 300 tons of sheep's-milk cheese was prohibited last year.

[Question] Is it true that large quantities of fresh vegetables have been confiscated from the capital's cooperative markets due to their radioactive contamination?

[Answer] The latest gamma-spectrometric analyses of fresh vegetables show that the cesium-nuclide content of fresh vegetables is between 3 and 25 times less than the permissible content, while that of spinach, garlic and nettles equals zero.

The Capital People's Council has assured us that there has been no confiscation of vegetables from the capital's cooperative markets because no such

measure has been necessary. Minimal quantities have been taken to test the nitrate and pesticide content since some farmers abuse synthetic fertilizers and plant protectants, which in large amounts are harmful to human health.

[Question] Why has there recently been much talk among the people that some food products are radioactive?

[Answer] There are several reasons. One is that some individuals who allegedly have checked products at home for themselves have found a "great amount of radiation" in some of them. These are irresponsible old wives' tales since the measurement of radionuclide contamination is impossible under home conditions. It is done with complicated instruments and is only within the powers of specialized laboratories.

Some specialists and laboratories, in noting isolated results of analyses they have made, have made unnecessary recommendations to various departments. Uninformed about the overall radiation situation and the measures the country has taken, they have become the agents of needless tension.

The newspaper POGLED, which published recommendations not only of specialists but also of readers, also "contributed." In practice, advice was given which there was no reason to implement.

No "home" measures are needed. Everything necessary to protect the population from radioactive irradiation has been done in good time and competently throughout the country.

The deboning of meat is not necessary since the investigations of the specialized laboratories show that the strontium-90 contamination is several fold less than the permissible level recommended by the FAO. The studies of the Agricultural Academy show that soaking contaminated products in water reduces the radionuclide content. This, however, by no means signifies that the situation in our country makes such treatment necessary. The products sold in the trade network are not contaminated above the established standards.

We must note that the contamination in our country was not great and, second, the measures taken have been extremely energetic and have prevented the creation of any hazard whatsoever for humans.

It is appropriate to recall here the words of the general director of the International Atomic Energy Agency, Dr Hans Blix: "It would be reasonable to conclude that the aftereffects of the Chernobyl' accident for the health of humans outside the boundaries of the USSR are so negligible that not only can they not be estimated, they cannot be determined at all."

6474

CSO: 5100/3017

BRIEFS

ARGENTINE, URUGUAYAN NUCLEAR ACCORD--Montevideo, 26 May (DYN, Special Correspondent)--The Argentine and Uruguayan Atomic Energy Commissions today signed a cooperation agreement that will be implemented under successive biannual plans for mutual technical assistance. The agreement shows that Argentina and Uruguay are interested in the research and intensification of the use of nuclear energy for peaceful purposes, and in its scientific and technical development. This agreement is based on a cooperation agreement signed in Buenos Aires on 8 July 1968. The 1987-88 plan, which was signed today, includes courses of action related to 14 specific areas of cooperation. They are the fields of nuclear engineering, nuclear physics, nuclear research reactors, nuclear electricity and instrumentation, radio isotopes production, application of radio isotopes and ionizing radiations, radiological protection and nuclear security, nuclear raw materials, nuclear legislation and administration, nucleoelectrical generations, nuclear technological documentation, data processing as applied to nuclear technology, analysis by X-ray, and nuclear analytical techniques. [Text] [Buenos Aires DYN in Spanish 0012 GMT 27 May 87 PY] /9274

CSO: 5100/2106

TWO NUCLEAR PLANTS HALT PRODUCTION FOR 'SECURITY'

PA061636 Paris AFP in Spanish 1536 GMT 6 Jun 87

[Excerpts] Buenos Aires, 6 June (AFP)--Argentina's two nuclear plants have stopped operations for security reasons and lack of maintenance work. This is a new result of the crisis affecting the National Commission for Atomic Energy (CNEA), it was learned in this capital today.

Yesterday, the Atucha I (located 100 km north of Buenos Aires) and Embalse in Cordoba Province) plants stopped supplying the 1,000 megawatts of electricity they normally supply to the country's power system.

The CNEA explained that the plants were taken out of service for "security" reasons because of the strikes the nuclear plant employees began some weeks ago are creating a discouraging environment among the personnel. At the same time, they create the conditions for a "human error" of unforeseeable consequences, considering the delicate environment.

The CNEA added that the accumulation of corrective and preventive maintenance tasks has increased to such an extent that the paralyzation of the two plants became essential.

The commission employees' labor conflict is caused by the months-long delay in a promised salary adjustment. The delay results from the Economy Ministry's refusal to allocate the funds.

The Finance Ministry's refusal to supply the necessary and already-promised foreign exchange led to the recent paralyzation of work on the third nuclear plant, Atucha II, and on the Arroyito heavy water plant.

Official sources of the power services today reported that for the moment the paralyzation of the nuclear plants will not affect the energy supply. However, they said that this "will only be the case in normal conditions;" in other words, if there is no extraordinary demand or if there is no drop in the water level at the Salto Grande and El Chocon hydroelectric plants.

/12913

CSO: 5100/2104

GROUP OF SIX CALLS FOR NUCLEAR DISARMAMENT

PY220352 Buenos Aires TELAM in Spanish 2148 GMT 21 May 87

[Text] Buenos Aires, 21 May (TELAM)--The Group of Six for Nuclear Disarmament, which tomorrow celebrates the 3d anniversary of its first joint declaration, reiterated its demand that the survival of humanity not be threatened by nuclear catastrophe, and called on nations not to jeopardize the process of nuclear disarmament.

This statement was part of a declaration by the foreign ministries of the group signed by the presidents of Argentina and Mexico, Raul Alfonsin and Miguel de la Madrid, respectively, and by Prime Ministers Andreas Papandreu of Greece, Ingvar Carlsson of Sweden, Rajiv Gandhi of India, and Julius Nyerere of Tanzania.

The declaration expresses satisfaction with the positive reaction to the groups' different initiatives, especially the reaction of U.S. President Ronald Reagan and Soviet leader Mikhail Gorbachev.

The Group of Six stated that the summit meeting in Reykjavik clearly showed that important agreements on nuclear disarmament can be reached if there is the political will to do so.

The declaration calls for the resumption of disarmament negotiations because this is a crucial time, and is possible to reach an agreement if progress is made on the issue of nuclear arms in Europe.

The declaration concludes by recalling that there is a specific Mexican offer concerning to stop nuclear tests, and calls on Reagan and Gorbachev to face the challenge of the times so that future generations will not have to live under the threat of a nuclear holocaust.

/12913

CSO: 5100/2104

BRIEFS

NUCLEAR PLANT WORKERS SUSPENDED STRIKE--Cordoba, 10 Jun (TELAM)--The workers of the Embalse nuclear plant of this province today resumed their activities, after the Villa Maria Light and Power Union decided to postpone the coercive measures they had adopted until next month. The plant will begin operating normally tomorrow or day after tomorrow. The plant will be out of service until then because of a routine inspection ordered in the wake of the conflict over salary demands declared by the workers, who belong to the Light and Power Union. The workers partial strikes were affecting the normal production of energy. Villa Maria Light and Power Union Secretary General Jose Gigante has told newspaper LA VOZ DEL INTERIOR that during a meeting, the workers of the plant, located 130 km from this capital, decided to lift the coercive measures until the end of the month to give the government time to comply with the terms of the agreements reached to solve the conflict. The agreement provides for the establishment of salary levels that are similar to those of the public administration, and for an update of the payment to skilled workers at the plant. [Text] [Buenos Aires TELAM in Spanish 1538 GMT 10 Jun 87 PY] /9738

WORKERS DEMANDS MET--Atucha and Embalse nuclear plant personnel have suspended their strike. The National Commission for Atomic Energy yesterday reported that the conflict was overcome because the Economy Ministry has authorized a salary hike of 25 percent. Operation at the nuclear plant had been suspended because of the strike. At the beginning of next week the plants will again be in operation. [Text] [Buenos Aires Domestic Service in Spanish 1600 GMT 11 Jun 87 PY] /9738

'SERIOUS' NUCLEAR ACCIDENT REVEALED--Cordoba (DYN)--Ecologist groups yesterday demanded an explanation on news of a "serious nuclear accident" which took place in the Embalse nuclear plant near this city on 30 June, 1983. The manager of the plant, Eduardo Diaz, denied there were any "radioactivity leaks to the atmosphere or any injuries during the accident," but admitted there had been "a faulty valve" in the system. The Argentine Ecological Movement (MAE) reportedly picked up the information from the German magazine DER SPIEGEL. The latter described the accident as very serious and suggested there could have been grave consequences had the leak been discovered a few moments later than it actually was. National Atomic Energy Commission (CNEA) President Emma Perez Ferreira had earlier called on the population to abandon common fears on the possibility of a nuclear accident. During his first press conference as CNEA president, Perez Ferreira expressed surprise at recent news of the nuclear accident in Cordoba in 1983. She said the accident took place when the Embalse nuclear project was under the responsibility of West German suppliers. [Text] [Buenos Aires BUENOS AIRES HERALD in English 24 May 87 p 15 PY] /9274

RADIATION CONTAMINATION DANGER REPORTED--Cordoba, 2 June (TELAM)--Local Justicialist and Christian Democratic Party leaders have laid charges before a court regarding the alleged danger of contamination due to the accumulation of acid and radioactive liquids in the high basin of San Antonio River. This accumulation has been caused by the work that is being carried out by Sanchez Granel Enterprise under the supervision of the National Atomic Energy Commission (CNEA). The writ [words indistinct] a report of the Permanent Commission for Contamination Prevention and Control [Comision Permanente para la Prevencion y Control de la Contaminacion], which is a department of the Environment Under Secretariat of the local Planning Ministry, indicates that the population will be in danger if there is a leak of those liquids into the San Roque Basin. The writ is signed by Jose Manuel de la Sota, a national deputy and a candidate for the governorship for the Justicialist Party, and political leaders Jorge Gentile, Miguel Humberto Dalessandro, and Juan Carlos de la Pena, who have asked that an investigation be conducted. [Text]
[Buenos Aires TELAM in Spanish 1516 GMT 2 Jun 87 PY] /12913

CSO: 5100/2104

BRAZIL

LATIN AMERICA

NAVY MINISTER ON PLANNED NUCLEAR SUBMARINE

PY090154 Brasilia Domestic Service in Portuguese 2200 GMT 8 Jun 87

[Text] Navy Minister Henrique Saboia today made comments about the possibility of building the first Brazilian nuclear submarine. He made these comments during the launching ceremony of the warship Japeguai.

[Begin relay] The corvette Japeguai, the second of a new class of warships built by the Brazilian Navy for escort purposes using river and transoceanic [word indistinct], was launched during a ceremony presided over by Navy Minister Henrique Saboia.

The corvette Japeguai, which was christened by Mrs (Rutilair Rademacher), the widow of Admiral Rademacher, is 96 meters long, has computerized weapon systems, and will be capable of identifying a threat, and promptly reacting with (SS) missiles, guns, torpedoes, or transport helicopters.

Following the ceremony, the Navy minister made comments on the program to build a Brazilian nuclear submarine.

[Begin Saboia recording] The submarine will have conventional weapons and will be propelled by nuclear power. This is a long-term project. The project had many (?alternatives) during his initial stage. However, we must first study how to build this submarine. [end recording] [end relay]

/8309

CSO: 5100/2104

IPEN DEVELOPS SUPERCONDUCTOR MATERIAL; CNEN HEAD COMMENTS

New Product

Sao Paulo FOLHA DE SAO PAULO in Portuguese 1 May 87 p A-17

[Text] Yet another group of researchers in the country has developed a ceramic material which is a superconductor. Physicists Spero Penha Morato and Sonia Baldochi, working at the Institute for Energy and Nuclear Research (the IPEN, affiliated with the National Nuclear Energy Commission), completed development this week of a ceramic compound (made of yttrium, barium, copper and oxygen) which becomes a superconductor at -181 degrees Celsius (or 92 degrees Kelvin, the scale used by the physicists). On 16 April, FOLHA reported that a team at the Sao Carlos Institute of Physics and Chemistry at the University of Sao Paulo (IFQSC/USP) had produced a ceramic substance which becomes a superconductor when cooled to -171 degrees Celsius (102 degrees Kelvin). Researchers in the two groups, the only ones in Brazil which have succeeded in developing superconductor materials, define the temperatures for their compounds differently.

The scientists are trying to find materials which become superconductors at higher temperatures, which would make their production more feasible from the economic point of view. According to Penha Morato, the compound developed at the laboratory of the USP Physics Institute (in Sao Paulo) becomes a superconductor at a higher temperature than that demonstrated by the Sao Carlos team.

Morato says that this group has produced a material which becomes a superconductor at a temperature of 90 degrees Kelvin. Heitor Cury Basso, 31, an IFQSC expert on semiconductors, confirms that the steps taken to verify the superconducting phase of the material pointed to the 100 degrees Kelvin level.

Mastery of Technology

The IPEN researchers at the USP Physics Institute in Sao Paulo and those at the IFQSC regard the difference in temperatures noted as irrelevant. They say that what is important is the fact that teams in Brazil are mastering the production of superconductor ceramics.

What Superconductivity Is

The phenomenon of superconductivity was discovered at the beginning of the century by the Dutch physicist Heike Kamerlingh-Onnes. It is a property seen in a material which, at clearly defined temperatures, conducts electrical current without energy loss. This means that superconductor materials offer no resistance to the passage of electrical current.

The temperature at which materials become superconductors varies depending on their composition. It is called the critical temperature of the material, and in general it is very low (near absolute zero, -273.15 degrees Celsius). At higher temperatures, the material serves as a normal conductor. At lower temperatures, it becomes a superconductor.

Compounds are now being developed at research centers throughout the world which become superconductors at temperatures closer to that of their environment. Moreover, superconductivity does not depend on temperature alone. Magnetic fields applied to the material and the intensity of the current passing through it also determine whether superconductivity will be seen or not.

Marketing in 3 Years

Brasilia--The president of the National Nuclear Energy Commission (CNEN), Rex Nazareth, announced yesterday at 6 pm at the Planalto Palace that the IPEN achieved a breakthrough this week in the area of superconductor development. He said that the superconductors the IPEN has now developed may be marketed on a small scale within 3 years, and on a larger scale in 5 to 10 years.

He said that superconductors have many applications in the saving of energy in electrical transmissions, in reducing the loss of power in storing energy, in increasing the speed of computer processing, in levitation through magnetic fields, in nuclear fusion and in reducing the size of linear accelerators (used in cancer therapy and the preservation of foodstuffs, among other things).

Nuclear Energy

The president of the CNEN said that state-of-the-art technological research is a part of the Autonomous Nuclear Energy Program (also known as the "parallel program"), which has been pursued in the country since 1980, with special emphasis under the present government.

Nazareth said that Brazil has opted for the peaceful use of nuclear energy. "Nuclear energy is being applied today in sectors quite different from the simple generation of electrical energy. In Brazil, about 1300 hospitals are using nuclear energy for health treatments." The president of the CNEN said that in 1982, Brazil imported radioisotopes worth about \$10 million (250 million cruzados) annually, while it is currently importing amounts costing less than \$1 million (25 million cruzados).

Advanced Research

In the opinion of Rex Nazareth, through its development of superconductors, Brazil is freeing itself from the pressure exerted by the developed countries in this field, since no developing country today has access to this state-of-the-art technology. He said that research is well advanced in the Soviet Union, the United States, France, Japan and West Germany. Trade in this sector, according to Nazareth, totals about \$70 billion (about 1,750,000,000 cruzados) per year, but only a limited group of countries has access to it.

Third Team Succeeds

Sao Paulo FOLHA DE SAO PAULO in Portuguese 5 May 87 p A-19

[Text] Campinas--Physicists Sergio Gama, 38, and Renato de Figueiredo Jardim, 27, both researchers at the Low Temperatures Laboratory at the Campinas State University (UNICAMP) Physics Institute, announced yesterday that they have developed a ceramic compound which becomes a superconductor at a temperature of approximately -178 degrees Celsius (95 degrees on the Kelvin scale, which the researchers use). This is the third group in the country to achieve results in developing materials which are superconductors at between 90 and 100 degrees Kelvin, similar to the results already obtained abroad.

In April, a team at the Sao Carlos Institute of Physics and Chemistry at the USP achieved superconductivity at -171 degrees Celsius (102 Kelvin), and last week, the IPEN achieved such results at -181 degrees Celsius (92 Kelvin).

The ceramic compound produced by Gama and Jardim is the same as that developed in Sao Carlos and by the IPEN, being composed of oxygen and yttrium, barium and copper oxides. Brazilian and foreign scientists are seeking to achieve superconductivity at ever higher temperatures, making their use more viable economically. Gama and Jardim have been researching ceramic materials for 2 months, and they say that their work has had no financing.

5157

CSO:5100/2100

ANGRA I TO CLOSE IN MARCH 1988 FOR FUEL CHANGE

PY030330 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 2 Jun 87 p 32

[Text] The Angra I nuclear power plant will be disconnected again in March 1988, this time to change fuel. The plant will remain idle for 45 days, a period to be exploited by technicians of the U.S. Westinghouse Company (which sold the plant to Brazil) and of the company responsible for its operation, Furnas Electric Power Plants [FCE], to improve and modernize some security equipment. Angra I has only been operating continuously for 2 months since the time it was disconnected toward the end of last year, for the 22d time, when a failure at the plant damaged the diesel-driven emergency generator. Since 1977, when the plant was finished, Angra I has worked for less than a total of 5 months.

Joao Camilo Penna, FCE president and former industry and commerce minister, has declined to reveal further details on the negotiations with Westinghouse on how to improve Angra I's performance. This plant has already been called a "f. refly." In a news conference held yesterday at the Sao Paulo Business Center, where he is participating in the opening of a seminar on energy, Camilo Penna said that an agreement has already been reached to change some security equipment and to install modernized technologies in March and April 1988.

Camilo Penna added that Angra II will not be finished in the scheduled 5-year period, and this is why the FCE has decided to invest in the construction of three small hydroelectric dams on the Paraiba River, Rio de Janeiro State, below the city of Tres Rios. The three dams, Sapucaia, Simplicio, and Itacoara, will have a total capacity of 800 megawatts. They will be built with resources from Electrobras [Brazilian Electric Power Companies, Inc.] that will be channeled to the FCE as reimbursement for the investments made in the nuclear program. Electrobras is transferring 10 billion cruzados, but the FCE president is waiting for another 20 billion cruzados this year.

Camilo Penna has admitted that the three hydroelectric dams on the Paraiba River will have fewer costs and less risks than those of Angra II, which has already consumed \$1 billion and requires another \$1 billion to be finished. Nevertheless, the former minister defended the investments in the nuclear program, stating that in 15 years the country will no longer have usable water resources and will depend on atomic energy. "If we go for a lengthy period of time without investing in the sector, we run the risk of losing the experience accrued so far," Camilo Penna stated.

/8309

CSO: 5100/2103

ECOLOGISTS SUBMIT PROPOSAL TO BAN NUCLEAR PLANTS

Brasilia CORREIO BRAZILIENSE in Portuguese 2 May 87 p 6

[Article by Yolanda Vianna]

[Text] The deadline for the proposals which will be discussed by the commissions of the National Constituent Assembly is next Wednesday, and the ecologists, represented on the Subcommittee for Health, Environment and Safety by Deputy Fabio Feldmann (PMDB, Sao Paulo), will present proposals prohibiting the operation of nuclear plants and asking for the participation of the Armed Forces in environmental protection, among others.

In his proposal, the deputy will submit a draft article providing that the Armed Forces, in case of need, can be authorized by the National Congress to take action in defense of natural resources threatened by illicit exploitation practices, above all in the frontier regions.

Moreover, the ecologists have drafted an article which "prohibits the import, manufacture or transportation of nuclear artifacts for war, with responsibility for faithful adherence to this provision falling to the president of the republic, with the penalties provided in the constitution for neglect of this responsibility."

The nuclear issue has been debated at length, and Feldmann proposed an article which "prohibits the installation or operation of nuclear reactors for the production of electrical energy on our national territory, except for scientific purposes." This same proposal also would place all other nuclear activities under the strict control of the public authorities, with additional supervision by bodies representing civilian society being assured.

In justifying the proposal prohibiting nuclear plants on our national territory, mention was made of the explosion at the Chernobyl Nuclear Plant in the Soviet Union. It was also pointed out that the major problem with a nuclear accident is the release of radioactivity, which, although it has no smell, color or sound, can be fatal and irreversible.

"Everyone has a right to a healthy and ecologically balanced environment. This is regarded as public patrimony, and its protection is the duty of the

public authorities and the collective." This was one of the first items proposed by the ecology group under the heading Rights and Guarantees.

The proposals submitted, specifically under the heading pertaining to the environment, include authorization for government bodies to define the territorial areas to be given special protection because of their ecosystems, their mineral, vegetable and animal species, genetic banks, landscape or historic, archaeological, tourist, aesthetic or cultural values, in view of the need to preserve them for the use of this and future generations.

The critical pollution areas will be made the focus of efficient measures to be undertaken by the public authorities with a view to eliminating conditions adverse to the well-being of the collective and reestablishing environmental quality and the ecological balance. This was set forth in another proposal made to the Environmental Subcommittee. Public and private activities in the critical pollution areas will only be allowed if they are compatible with the environmental control plans.

The ecologists believe that it is essential that the completion of multidisciplinary environmental impact studies prior to the launching of projects, plans or activities which can damage the environment be made obligatory.

The president of the Subcommittee on Health, Environment and Safety, Deputy Jose Elias Murad (PTB, Minas Gerais), despite his demonstrated interest in the health issue, gave assurance that environmental problems will be given due attention in the discussions of the subcommittee he heads.

5157
CSO:5100/2100

INDIA

NEAR EAST & SOUTH ASIA

LISTENERS TOLD INDIA LEADS IN NUCLEAR TECHNOLOGY

BK021439 Delhi General Overseas Service in English 1340 GMT 2 May 87

[Commentary by Rajendra Prabhu, special correspondent of the HINDUSTAN TIMES:
"India's Lead in Nuclear Technology"]

[Text] Talking of nuclear technology one often comes across the question: When will India make the atom bomb? Obviously, the public mind is so occupied by the reports of Pakistan being already at or very near the nuclear threshold that it tends to equate distinction in nuclear technology with the making and testing of a weapon. Far more sophisticated research and development goes behind the modern nuclear reactor, which depends upon controlled splitting of atoms as against the spontaneous and simultaneous splitting that occurs in a bomb.

In a reactor the crux of the problem is to insure that this splitting, called chain reaction, not only does not go out of hand but proceeds in a manner you want to happen. This explains the complicated controls that have to be built in to make the reactor work within strict limits of safety. It is interesting to note that China, which had acquired nuclear weapon capability in the 1960's, has recently called on Western technology for building its nuclear reactors. We in this country should, therefore, be proud that we have today functioning nuclear reactors designed, built, and commissioned by our own scientists and engineers with components made indigenously by our own industry. This includes thermal reactors like the one functioning at Kalpakkam in Madras of 235-mg size and the fast breeder reactor of 15 mg at the same site. Not only the reactors, but both the front-end and back-end technologies required for sustaining a long-term nuclear power and research program have now been acquired with indigenous effort.

Today India can claim that it has the entire range of technologies needed for extracting uranium from the ores, making fuelpins from this uranium, using these fuelpins in a reactor along with heavy water as a moderator to generate the heat necessary for conversion of water into steam to generate power and manufacture of heavy water. These constitute the back-end technology. Then there are a host of other technologies which take off from the completion of the burnup of the fuel in the thermal reactor. The most important of these is the technology to reprocess the spent fuel rods and extract valuable plutonium from them.

Our listeners should specially note that this reprocessing technology, which is closely held by a few advanced countries, has been fully mustered all from the scratch by our own technologists. Today we have two reprocessing plants built indigenously and a third one under construction. Pakistan is known to be still struggling to complete a reprocessing plant that was half built by the French. No other nation can make this claim of having reprocessing technology, east of the Suez, excepting Japan.

There are several interesting sidelights to this acquirement of both the front-end and back-end technologies of reactors beside the reactors themselves, the heavy water technology, for instance. The indigenously built heavy water plant at Kota uses a process developed by the Bhabha Atomic Research Center. This process utilizes a highly corrosive gas--hydrogen sulphite--to extract heavy water from ordinary water. There is the technology for (?classification) of nuclear waste and storing them under deep underground. The Indian process for this has been acclaimed by the International Atomic Energy Agency as one of the safest ways of disposal of highly radioactive nuclear waste.

The preparation of fuel for the fast breeder reactor at Kalpakkam marks another high point of Indian technology. Discarding a foreign offer Indian scientists developed a plutonium-uranium-carbide mixture for the fast breeder. It was well known that theoretically such a carbide mixture was preferable to an oxide mixture of plutonium and enriched uranium because it has a better breeding ratio. It means the time the fuel takes to produce more fuel than it is fed into the reactor is shorter. It was left to India to manufacture this carbide fuel and then make it work successfully in a fast breeder for the first time in the world.

By any technological standard there is no need to compare India's achievement and peaceful uses of the atom with that of any other Asian nation. As I said in the beginning, a program of peaceful use of this wild and mighty power locked in the atom demands a far higher level of technological and manpower input than any weapons program.

In nuclear technology India can claim without being challenged that it is on the front line with spectacular lead in several areas.

/9599

CSO: 5150/153

BRIEFS

PAPER REPORTS URANIUM SALES--London--Iran is secretly buying uranium from a British-operated mine in Namibia, despite Ayatollah Khomeini's strong opposition to South African occupation of the territory, it was reported here. THE OBSERVER newspaper said that the Iranian government also had a shareholding in the mine at Rossing, which was operated by London-based Rio Tinto-Zinc. Nuclear experts are surprised that Iran has allegedly continued to buy uranium from Rossing for the past eight years. Observers fear Ayatollah Khomeini's government may be developing its own atomic bomb. Asked to comment, a spokesman for the Atomic Energy Commission said: "In January 1984, a statement on South Africa's policy with regard to the supply of nuclear technology, materials and equipment was issued. The assurance was given that South Africa would conduct and administer its nuclear affairs in a manner which is in line with the spirit, principles and goals of the Non Proliferation Treaty (NPT) and the nuclear suppliers group guidelines. All uranium sold is delivered subject to peaceful uses only. With regard to deliveries to non-nuclear weapons states, such deliveries are subject to specific safeguards agreements. In the case of Iran, the NPT safeguards agreement as concluded between Iran and the International Atomic Energy Agency supplies." [Text] [Johannesburg THE STAR in English 21 May 87 p 3] /9274

CSO: 4600/237

KULDIP NAYAR INTERVIEW WITH A.Q. KHAN ANALYZED

Islamabad HURMAT in Urdu 29 Mar 87 pp 8-21

[Report by Zahid Malik: "Strict Security Measures Taken to Protect Dr Khan; Prime Minister Junejo Enraged"]

[Excerpts] I visited the prominent atomic scientist Dr Abdul Qadeer Khan at his beautiful residence in the Margila hills at 5:00 pm on Thursday, 29 January. Whenever I ask for an interview with Dr Khan, he sends his car to pick me up. I make small talk with his driver Allah Ditta (who is a retired soldier and one of his most devoted employees) while being driven to his house. When I arrived at his house in his car, I noticed that two red flowers had blossomed among the Holland tulips that the gardener had planted near the main gate. When I entered their drawing room, Mrs Honey Khan said in English, "Mr Malik, yesterday Dr Khan made a big mistake. He allowed an Indian journalist to visit him. My sixth sense is telling me that it will cause many problems." Before I could ask her the details of this "mistake" Dr Khan said, "Since I have not told anything objectionable to this Indian journalist, I see no reason for any problems."

I know enough about this venerable son of our country to say that he is very careful and patriotic. He would never say anything to an Indian journalist that might be detrimental to the security of our beloved country. However, after listening to the details from Mrs Khan, I concluded that it would have been better if Dr Khan had not allowed this Indian journalist in his house. Even though we know well that Dr Khan would never say anything objectionable even to a Pakistani, much less an Indian journalist, I shared Mrs Khan's fears. As a journalist I could see that when this meeting is known to the anti-Kahuta lobby (which is working for some foreign power), they will open another tirade against Dr Khan. On my way back I was very heavy-hearted. In order to console myself, I told Allah Ditta, "Dr Khan has made a big mistake by letting that Indian journalist visit him. He does not know how those people in Islamabad working against him will distort this meeting." Allah Ditta remained silent, but I could see that he was worried.

Days passed and the whole month of February was gone. During this time, I expressed my fears to some of my close friends. When Shameem Rizvi, publisher of the daily MUSLIM and a close friend of mine, visited me on 13 February, I told him that his editor, Mushahid Hussain, had committed a grave mistake. Mr

Rizvi was very upset when I told him the details. However, as the month of February entered its last week, I began to feel less worried. I concluded that since this unscheduled meeting with the Indian journalist was very informal, perhaps he was just curious about this mysterious Dr Khan. He might just have wanted to take a look at the creator of the "Islamic" bomb. Slowly, the importance of this incident began to wane.

Commotion in President's House -- On 28 February, there was a great commotion in the Army House where President Zia lives and is known as the President's House. According to our sources in the President's House, the president was greatly agitated when he received a telephone call from London when the tired sun was setting behind the hills of Margila.

Before I go into the cause of President Zia's worry, HURMAT's readers should know that Shaheryar Khan, Pakistan's recently appointed ambassador to England, had gone through a very distressing experience. Pakistanis living in England was calling the embassy official repeatedly. I have observed that Pakistanis living abroad become more patriotic. According to Sayyed Gailani, London correspondent of the HURMAT, telephones in the offices of Shafiq Alazman, embassy press attache, and Raziuddin Sheikh, information minister and former director of public relations of WAPDA, were ringing incessantly. What happened was that the OBSERVER, London's widely circulated newspaper, carried an advertisement announcing "a sensational interview with the mysterious Pakistani Dr Abdul Qadeer Khan, Pakistani hero and creator of the 'Islamic bomb' by Kuldip Nayar." The embassy sources had learned that the interview was very damaging and Kuldip Nayar was saying that Pakistan had already made an atomic bomb.

Obviously, at a time when the U.S. Congress was debating a \$4.2 billion aid to Pakistan, an interview like this could cause serious problems for Pakistan. Not only the diplomats in our embassy, but Pakistanis living in London were aware of it. An educated taxi driver living in London commented, "This is a part of a large scale conspiracy against Pakistan."

The embassy informed our foreign minister in Islamabad as well as President Ziaul Haq, and Prime Minister Junejo about this situation and the fears and concern felt by the Pakistanis living in London. The president, who has been involved with the Kahuta plant for a long time and is personally interested in atomic energy, was greatly agitated. His experience and analysis of the situation told him that "India has shot an arrow against Pakistan." In order to counter the tumultuous situation that might arise from this publication, the president asked his ADC to invite Dr Khan for a meeting at 8:00 am the next day. Dr Khan had learned before he arrived that an interview by Kuldip Nayar involving him was being published. He was puzzled because he had never given an interview to Kuldip Nayar. He was, as usual, calm and composed. His smile showed that honesty wins and the truth prevails.

We assume that the president listened to the details of this alleged interview from Dr Khan. The president listened to what Dr Khan said and, using his vast experience, also understood what Dr Khan did not say. Then he mentioned what kind of harmful results could come out from such an interview. We can also assume that the president advised Dr Khan to completely stay away from all

members of the foreign press. Dr Khan was very thoughtful when he returned after meeting the president. The president was also very perturbed.

A Shocking Interview by the MUSLIM -- The OBSERVER published Kuldip Nayar's sensational interview (reproduced on pages 20-21) on 1 March. The daily MUSLIM (Islamabad) and the NATION (Lahore) also published this alleged interview with Dr Khan by Kuldip Nayar. Kuldip Nayar writes for these two newspapers also. How appropriate is for Pakistani newspapers to have a Hindu journalist represent them and how beneficial is it to our country to have poisonous language of a bigot like Kuldip Nayar be made public? These are questions of separate nature. All I want to say at this point is that two large Pakistani newspapers caused a hideous situation in the country. The interview published in the MUSLIM (excerpted on pages 18-19) was especially damaging. This influential newspaper is published from our capital and most of government officials as well as diplomats stationed in Islamabad read this English daily first. I called Dr Khan immediately and asked what was the background of this interview. Dr Khan replied, "Mr Malik, this is a bundle of lies."

Security Measures and Enraged Commandos -- There was a great uproar in all Pakistani intelligence agencies at the publication of this interview. No one could understand how an Indian journalist succeeded in meeting with Dr Khan. Officials of various intelligence agencies went immediately to their committee rooms, hung maps on the walls, and lit red bulbs outside their door. All this indicated that they did not want to be disturbed during these very important meetings. The whole security system came under scrutiny. The important question was how could an Indian journalist meet Dr Khan despite several layers of impregnable security. The second question under discussion was if a foreigner could succeed in visiting Dr Khan then could not another foreigner (or a Pakistani) access the Kahuta plant?

Another meeting of high officials responsible for security around the Kahuta plant was also called. These officials, who are associated with the military, learned at the same time as this interview was published that Kuldip Nayar had managed to meet Dr Khan with the help of the editor of the MUSLIM. The anger of these officials against Mushahid Hussain is understandable. The whole incident involving this interview was called a conspiracy. Young commandos stationed outside and around Dr Khan's house were enraged when they learned that Mushahid Hussain had taken advantage of his personal contacts with Dr Khan and had brought an Indian journalist to see him. When Dr Khan arrived at his residence from the Kahuta plant at 6:00 pm, a 30-year old commando came forward, saluted him, and said in a very angry and hurt voice, "Sir, Mushahid Hussain has insulted us. We will crush his skull and teach him a lesson that his family will remember forever." Dr Khan patted the angry commando's shoulder and told him not to worry and that everything would be fine. He entered his residence surrounded by security guards.

General Aarif's Concern -- I learned that 2 hours after the publication of Kuldip Nayar's interview General Khalid Mehmood Aarif, chief of the army staff, invited the prominent atomic scientist to the general headquarters. The military mind of General Aarif had assessed the possible damages that this interview could cause. Many things could have happened as the result of this interview. (I will list the possibilities later in this article.) General K.

Aarif is a strict disciplinarian and believes in well-structured organization. He also has a heart of a sensitive poet. He usually sports a nice smile. He speaks little, but his silence communicates a lot to the other party. When Dr Khan arrived at the GHQ, he met General Aarif instead of Aarif the poet. His face showed anger and the mind that is always thinking about his country's welfare was worried. Dr Khan, however, told the same thing to General Aarif that he had told President Zia the previous evening.

Ghulam Ishaq's Worry -- HURMAT (Volume 6, issue 1, 31 December 86, page 34) had chosen the internationally famous atomic energy scientist Dr Abdul Qadeer Khan the Man of the Year. At that time, we wrote that Ghulam Ishaq Khan, chairman of the Senate, had played a very important role in establishing the Kahuta research plant and making it world famous. As minister of finance, and before that while working in various positions, he had provided the required money necessary for this plant. I have always heard Dr Khan praising Mr Ghulam Ishaq Khan. Mr Ishaq Khan's nervousness when the MUSLIM published this interview was natural. According to my information, the Senate chairman also contacted Dr Khan and questioned him.

How did Kuldip Nayar enter Dr Khan's house? This was the question asked of Dr Khan by various high officials on the phone all day. After long discussions, it was decided that Dr Khan should issue a press release explaining the situation and denying being interviewed. Thus, Dr Khan issued his explanation to the press.

F-16 Planes Over Kahuta -- By the evening (the evening of 1 March), all policy-making officials began to give importance to the rumors that countries at have often considered to destroy Kahuta (Israel) and the one whose designs against Kahuta were no secret (India) might attack Kahuta at the insistence of some superpower, now that an Indian journalist had declared that Pakistan has an atom bomb with reference to Dr Qadeer Khan. This interview was published in the OBSERVER and the entire world was aware of Pakistan's Islamic bomb. These rumors created an atmosphere of confusion in Islamabad. A news story describing Israel's request for India's cooperation in destroying the Kahuta plant had been published only a few days earlier. According to that news item, India had not agreed with Israel to launch a joint attack on Kahuta. Israel had sent this secret message to India last year through one of its ministers who had visited Paris and had contacted a high level Indian diplomat. According to Kaul Singh, HURMAT's correspondent stationed in New Delhi, India had decided not to take a "big step" because of Gorbachev's "cool attitude." This background was the reason for the fears in Islamabad. Now that the "James Bond" of Pakistan had admitted having made an atom bomb, India's attacking Kahuta would be considered a justifiable action around the world. A senior journalist called me at night and said, "Mr Malik, this night is very 'heavy' for Pakistan." Important officials were exchanging their ideas and the rumors spread far and wide. The ultra-modern fighter planes, F-16, began to fly around Kahuta. Hot blooded martyrs-to-be began to search the dark skies. They were ready to shed their blood to protect the land of their birth.

Three Mistakes of Mushahid Hussain -- The main cause of all of Dr Khan's troubles was the three mistakes made by Mushahid Hussain, editor of the MUSLIM. Why did he take Kuldip Nayar to Dr Khan's home and what was the

purpose of the visit? Did he go there with Dr Khan's permission? I will answer these and some other questions later and also expose real facts. First, let me explain the three gross mistakes that Mushahid Hussain made. The first was made on 1 March and the second on 2 March. The third was also made on 2 March but was discovered on 3 March.

I said earlier that when I visited Dr Khan on 2 March I found him worried for the first time. Pressure from different sides was increasing on him. He was being told repeatedly that the \$4 billion aid from the United States might be stopped. Of course, he would be responsible for this huge loss to the country. Dr Khan was optimistic that the United States will not stop the aid and that it could not afford to do so. He was upset that he had caused problems for the president, the prime minister, and the government. The second reason for his distress were Mushahid Hussain's three mistakes which I will detail now.

This first mistake was made on 1 March when Dr Khan's denial was issued to the news media. This denial was heard all over the world the same day. Two most famous broadcasting agencies in the world, the Voice of America and the BBC, broadcasted Dr Khan's denial with full details. At that time it appeared that any harm done by Kuldip Nayar's interview was taken care of. Unfortunately, the FINANCIAL TIMES, a prominent British newspaper, turned the whole affair around again. Soon after the BBC broadcasted Dr Khan's statement rebutting the interview, Simon Anderson, a Jewish reporter for the FINANCIAL TIMES, called Mushahid Hussain from London and told him that after the denial issued by Dr Khan about being interviewed by Kuldip Nayar only he (Hussain) could clear up the situation. He was, after all, present during that interview. Mushahid Hussain replied that, "I confirm that this meeting took place for about 1 hour. As for this meeting being accidental, all I can say is that such meetings are not arranged without prior agreements." Mushahid Hussain was still talking with Mr Anderson when the phone line went dead. According to my information, the telephone agency broke the connection fearing Mushahid Hussain might tell more to this foreign correspondent. This brief conversation between Mr Anderson and Mushahid Hussain was published in the 2 March issue of the FINANCIAL TIMES. So, on 1 March Mushahid Hussain, in a reply to a question by a British newspaper, confirmed that Kuldip Nayar was right and disagreed with Dr Khan's statement that this meeting was not planned.

The second mistake was when K.S. Singh, India's ambassador stationed in Islamabad telephoned Mushahid Hussain at about 8:00 pm on 2 March. Mr Singh asked him, "Mr Hussain, Dr Khan has denied being interviewed by Kuldip Nayar. Can you say something about this issue?" Dear readers, I am not sure what went on between the Indian ambassador and Mushahid Hussain. All I can say at this point is that the Indian ambassador telephoned several important Pakistani officials and objected to Dr Khan's denial about making an atomic bomb issued by the government. He told them that Mushahid Hussain had just informed him that Kuldip Nayar's interview was correct and true and that Dr Khan had confirmed in his presence that Pakistan had already made an atomic bomb. One of the government officials whom the Indian ambassador had contacted told me about it himself. That noon (about 12:30 pm) I called Mushahid Hussain and asked him why did he tell all that to the Indian ambassador? Mushahid Hussain replied that the Indian ambassador was wrong. All he (Hussain) said was, "No comment." Personally, I believe Mushahid Hussain. I have no reason not to

trust him. The Indian ambassador, however, put Hussain in a very difficult position by using his information to lodge a protest with the Pakistani Government. The Indian ambassador used Mushahid Hussain's name repeatedly to strengthen his case. He made Mr Hussain a witness. Thus, our government's anger toward Mushahid Hussain increased greatly.

Mushahid Hussain's third mistake was revealed when Dr Abdul Qadeer Khan and I visited him at his house in the evening of the same day. The reason for our visit to Mushahid Hussain's home was Dr Khan's concern upon learning that Mushahid Hussain had confirmed Kuldip Nayar's interview in a conversation with the FINANCIAL TIMES and had also talked with the Indian ambassador. He was even more upset because some people were blaming him for stopping U.S. aid to Pakistan. He thought that if Mushahid Hussain continued to talk carelessly, this situation could become even worse. He did not want the government and the country to get into big trouble. Thus, for the greater cause of the country's good, he swallowed his pride and bent his principles, and decided to visit Mushahid Hussain. Mr Hussain served us tea and salted Iranian pistachios, which according to him were sent by the Iranian ambassador the very day.

During this meeting the other side of Kuldip Nayar's visit to Dr Khan's home with Mushahid Hussain was revealed. I learned that the meeting which took place between Kuldip Nayar and Dr Khan was of very different nature than the one described by Dr Khan in his statement denying the interview by Nayar. I will go into the details of Dr Khan's denial, the real circumstances under which the interview took place, and Mushahid Hussain's role in this whole drama. I will discuss Mushahid Hussain's third mistake at this point.

When I discussed this whole fiasco with Mushahid Hussain, I told him that it was time we let bygones be bygones. I requested him to please not to say anything to anyone which might confuse the issue even more and hurt our government and the country. Dr Khan also told Mushahid Hussain that keeping in mind the greater cause of our nation to please confirm that he did not give a regular interview to Kuldip Nayar and that they had a brief informal meeting. "Your retraction would clear up the situation." At this Mushahid Hussain said that, "From now on I will follow on what we agreed upon in this meeting." At the same time he confessed that, "I have written an editorial about your interview which will be printed in tomorrow's edition." At this I objected and requested Mr Hussain either not to publish that interview or used the term Dr Qadeer Khan's alleged interview. I asked him to add "Dr Khan's alleged interview which Dr Khan has denied that he has ever given." I told him that if he used the term "Dr Khan's interview" in his editorial then he would be confirming that Dr Khan actually did give an interview to Kuldip Nayar. In reply to my request and logic and Dr Khan's appeal, Mushahid Hussain had said, "I will see what I can do."

We were very happy when we returned from Mushahid Hussain's home. We thought that either he would not print that editorial or would make the necessary modifications to meet the country's demands. However, we were shocked to see the next morning that the original version of the editorial was published and every line of the editorial confirmed that Dr Khan did indeed give an interview to Kuldip Nayar.

Tirade of Anger and Rage -- These three mistakes made many people extremely angry at Mushahid Hussain. Some people even thought that Mushahid Hussain was working for a foreign government. Another group thought that he was working as an agent for the anti-Kahuta lobby and was trying to undermine the pride of Pakistan, the world famous atomic scientist. A group of journalists started a petition appealing the government to take disciplinary action against Mr Hussain. Many newspapers wrote editorials about him. From what I know, many government agencies also requested action against Mushahid Hussain. On 3 March, Dr Khan and Kuldip Nayar faded in the background and Mushahid Hussain became a topic of discussion everywhere!

S.M. Zaffar -- By evening the atmosphere was very anti-Mushahid and I thought that even Mushahid Hussain must have felt the heat of comments made by his opponents. I got a phone call from Dr Abdul Qadeer Khan at that time. He said that S.M. Zaffar was visiting him for a while and would like to join them.

S.M. Zaffar, the leader of the National People's Party and Pakistan's top ranking lawyer, was incidentally in Islamabad at that time. Ghulam Mustafa Jatoi, the president of his party, and some other leaders were also present in Islamabad. Dr Khan and S.M. Zaffar have been friends since a case for "stealing" atomic secrets was filed against Dr Khan in Holland. The "Jewish lobby" and the Western press had called Dr Khan by such fictional names as James Bond and had tried to give him a bad name. Various stories were invented to attack Dr Khan's character. At that time, there were fears that a foreign agent may hurt Dr Khan the way a prominent Iraqi atomic scientist was murdered by an Israeli agent in a Paris hotel. The Pakistani government, therefore, had built an impregnable wall of security around its valued son. At that time, Dr Khan had contacted S.M. Zaffar upon the insistence of one of his friends and had requested him to defend him in that sensational case in Holland. S.M. Zaffar got cooperation from some Dutch lawyers and demonstrated his God-given talents in defending Dr Khan. I have heard Dr Khan praise Mr Zaffar often.

Well, S.M. Zaffar was in Islamabad at that time. It should be known that S.M. Zaffar is a close relative and friend of Mushahid Hussain, the second character of the Kuldip Nayar fiasco. Dr Khan and Mr Zaffar are mutual fans. S.M. Zaffar is equally interested in the welfare of Mushahid Hussain. That evening when we gathered at the residence of Dr Khan, the subject of our discussion was, of course, this very drama. After discussing the issue for a few minutes, we decided that it would be wise to talk to Mushahid Hussain one more time. So we were at Mushahid Hussain's home at about 6:00 pm on 3 March again. This time, Mushahid Hussain, Mushahid's brother once a successful lawyer in the United States and is the officiating editor of the MUSLIM, was also present.

In order to keep my special report brief, I will not go into unnecessary details. All I will say here is that we had a good talk and agreed that Mushahid Hussain should issue a detailed report to clear up the misunderstandings about Pakistan's peaceful atomic program caused by the Indian journalist's ceremonial meeting with Dr Khan. At the same time because Mushahid Hussain had become a target of public criticism and was being called "an enemy of the country," it was decided that Dr Khan would issue a statement

explaining that Mushahid Hussain had visited him with Kuldip Nayar with his prior permission. This would cancel the belief that he had taken Nayar to Dr Khan's home without his knowledge and had introduced him as a (Muslim) friend. Mushahid Hussain said that had he wanted he would have explained in his newspaper story that he had taken Kuldip Nayar to Dr Khan's home with his permission. However, he did not think it appropriate to contradict Dr Khan's statement issued on 1 March. At that time Dr Khan said that since he (Hussain) was the only witness of this so-called interview, it was necessary for him to reveal the facts and save the country from being harmed. He (Hussain) could add whatever would help clarify his own position in this statement.

The first draft of this agreement was prepared by Muahid Hussain, but it was mostly one-sided. Later, S.M. Zaffar made this agreement more acceptable. He wrote it with his own hands and read it aloud to us all. He explained each point so clearly that everyone agreed to accept it. This way, S.M. Zaffar's strategy worked. It was decided that this draft would be given to the PPI so it could be distribute to all newspapers in the country.

How Did the Nayar-Khan Meeting Take Place? -- Dear readers, before I explain why Mushahid Hussain did what he did and what was his purpose or tell you how Kuldip Nayar returned to India and met Rajiv Gandhi or tell you what did our country lose (or gain) from this fiasco, let me tell you how Kuldip Nayar managed to go to Dr Khan's residence. There have been so many different versions published in various newspapers that the whole issue has become very muddy and unclear. The people are also very confused about this issue.

The fact is that Mushahid Hussain had taken Kuldip Nayar to Abdul Qadeer Khan's residence with his prior knowledge and permission. My investigations and information indicate that the accusations on Mushahid Hussain for taking Kuldip Nayar to Dr Khan's residence without his prior knowledge, that the meeting between Dr Khan and Nayar was accidental, and that Kuldip Nayar was introduced to Dr Khan as Nayar so he would think Kuldip Nayar to be a Muslim are all false. Mushahid Hussain is not guilty of any of these accusations. All those stories about Mushahid Hussain's smuggling Kuldip Nayar into Dr Khan's house by abusing his contacts with the prominent atomic scientist are false. I have already explained the mistakes made by Mushahid Hussain. However, the "mistake" of which he is being accused again and again was never made by him. My information (which is verified as correct) reveal that Mushahid Hussain arranged a meeting between Kuldip Nayar and Dr Khan at the former's request and the latter's knowledge and permission. Mushahid Hussain had explained about Kuldip Nayar's round over the phone at the same time when he had told Dr Khan about th .r's desire to see him. Dr Khan did not have any problem or doubts about this meeting. Therefore, I believe that we cannot accuse Mushahid Hussain about it. However, I would grant the reasoning that Mushahid Hussain should not have taken Kuldip Nayar to Dr Khan's residence even when Dr Khan had given the permission because of his generous heart. Being a Pakistani, he should not have taken an Indian journalist whose past anti-Pakistani antics are no secret to meet a Pakistani atomic scientist whom too many people want to kill.

Mushahid Hussain's Stand -- I did not ask Mushahid Hussain why he had taken an Indian journalist to Dr Khan's home. However, my meetings with him on 2 and 3 March help me understand his side of the story. I understood his side even better when on 2 March he had told us that he had written an editorial about Dr Khan's interview for publication on the following day. I had requested him not to write that editorial because it would only have made the matter worse and would have adversely effected the U.S. aid to Pakistan. His reply to my request helped clarify his position on this issue.

Mushahid Hussain's stand is based on two basic points. One, Pakistan should not take an apologetic attitude about its nuclear program. Pakistan does not have to hide what it has developed in the atomic area from India and the United States. Instead, it should tell India openly that it should be careful about its anti-Pakistani and expansionist activities. Two, as for the United States, it needs Pakistan as much as Pakistan needs it. The United States is very aware of the strategic location of Pakistan, especially after its interests in this area were hurt when the shah of Iran died. The USSR is busy cleaning up its mess outside the USSR and this has helped our position. Pakistan should not worry about the United States' stopping its aid.

According to my personal investigations and understanding, the main purpose of this whole drama was to undermine the person of the father of the "Islamic bomb." Dr Khan is almost worshipped in Pakistan because of the miracles he had brought about in such a short time. According to a survey, Dr Khan is the most popular and most respected person in Pakistan.

When Pakistan was divided into two parts in 1971 and our prime minister at that time visited India and signed an agreement appeasing India in Simla, every Pakistani was shocked and hurt. Later, during our longest martial law period, our foreign policy toward India had been aimed at hurting every Pakistani's national pride. Pakistanis are convinced by various Indian activities that India has never recognized Pakistan and is still trying to weaken Pakistan and establish akhand (undivided) India. Therefore, Pakistanis are not willing to accept Indian superiority. Dr Abdul Qadeer Khan emerged as a challenge against India's superiority. People know that the secret of Pakistan's safety lies in Kahuta. Now India has two choices to destroy Kahuta and stop its progress or establish its superiority over Pakistan. One option for India is to raid Kahuta by air and the other is to attack Dr Khan and undermine his person.

As regards to attacking Kahuta, India has investigated this possibility many times and even has discussed this issue with Israel. Pakistan, however, has made it clear to India within a few seconds of India attack on Kahuta, 40 modern F-16 fighter planes will take to air and even when India succeeds in downing some of these planes, hot-blooded Pakistani warriors will transfer Indian atomic establishments into rubble. Prime Minister Junejo had declared in a recent interview published in HURMAT that "an attack on Kahuta will be a call for a full-scale war." I remember well that when the prime minister had said this sentence his face had become very serious and hard.

Against this background, India has but one option open if it wants to destroy Kahuta or slow down the atomic research being carried out there. The way India had Kuldip Nayar's interview published and flaunted shows it is using this option.

Anti-Kahuta Lobby in Pakistan -- Thus, Dr Khan was (and still is) the target of India's Kuldip Nayar attack. India tried to impress Pakistanis that the U.S. aid to Pakistan was in jeopardy because of the "careless attitude" of Dr Khan.

Unfortunately, this gave an excuse for Pakistan's anti-Kahuta lobby to open its tirade against Dr Khan. This lobby is made up of some people working for the CIA. As soon as HURMAT publishes their black deed along with proofs (which the HURMAT already has), Pakistanis will not allow these people to remain in the country. This lobby directly, and some other groups indirectly, tried to make this talented son of Pakistan a subject of litigations. Pakistanis, however, are not thankless! How could a nation that gave one crore rupees to Mian Dad for scoring a sixer in a cricket match against India forget its idol whose hard work has made them walk with pride? How can it forget the father of the "Islamic bomb" whose deeds have changed to political map of this region? Pakistan has managed to join the rank of six or seven other developing countries that can process uranium. Now Pakistan has changed into a nation on which a country which has attacked it several time will have to think a hundred times before attacking it again.

The Question Marks Reviewed -- Readers, I have taken the liberty of erasing some parts of this special report. Some portions were deleted because the information contained therein was detrimental to the country's security. Other portions were withheld because they would have only started new debates in the country. I am not one of those journalists who would publish anything they know just to become a "great journalist." I am ending this report by inviting you to further discuss some of the question marks that this fiasco has left with us. I am also appealing to those Pakistani newspapers that have given some of their columns to Indian journalists. They should review their policy on this issue.

7997

CSO: 4656/73

BRIEFS

SPOKESMAN DEFENDS EQUIPMENT PURCHASE--Pakistan is making arrangements to further improve safety equipment at the Karachi nuclear power plant with the cooperation of another country. A Foreign Office spokesman in Islamabad made this statement while commenting on press reports about the alleged supply of nuclear equipment by a German firm. The spokesman said there are no international restrictions on the supply of equipment to Pakistan, whose nuclear program is solely for peaceful purposes. He added that Pakistan's Atomic Energy Commission or other nuclear establishments may need equipment from time to time. The acquisition of such hardware is totally in consonance with the rules and regulations of various countries for the export of industrial equipment and spare parts.
[Text] [Karachi Domestic Service in Urdu 0200 GMT 4 Jun 87] /8309

CSO: 5100/4750

FINLAND, SWEDEN JOIN IN STUDYING ROCK BURIAL OF ATOM WASTES

Finland Examining Swedish Experience

Helsinki UUSI SUOMI in Finnish 14 Jan 87 p 6

[Article: "Finns Participate in Swedish Studies; Gaps in Knowledge About Burial of Nuclear Waste"]

[Text] Finns are participating in filling those gaps in knowledge the Swedes have in preparing for the disposal of spent nuclear fuel in deep bedrock. Additional data is needed on, aside from geology, radioecology, so that it can be determined how radionuclides are sometimes conveyed to the surface of the earth if capsules containing nuclear fuel develop leaks due to corrosion.

Prof Jorma K. Miettinen has participated in the drafting of a report on the disposal of nuclear waste in bedrock prepared by the Swedish so-called Kasam Committee. Miettinen's expertise was needed because many Swedish radiochemistry scientists are tied up with the Swedish production of nuclear power.

Headed by Professor Miettinen, the University of Helsinki's Radiochemistry Institute is sending its report on the conveyance of radionuclides to Sweden and it will in turn receive their report as well as their other studies on the permanent disposal of nuclear waste materials.

A law passed in 1976, according to which such waste must be buried so that subsequent generations need not worry about it, is viewed in Sweden as requiring the burial of these waste materials in bedrock.

Professor Miettinen said that there are gaps in the information on geology that is needed, for example, what would happen to the caves the nuclear fuel is stored in when the earth's crust moves or even if there should be an ice age. They are estimating potential geological changes that will occur on a time scale of at least thousands of years.

Capsule Will Last a Million Years

The conveyance of radionuclides along with ground water in the rock and the retention of nuclides in minerals and different kinds of soil, which are being studied at the University of Helsinki's Radiochemistry Institute, involve the

possibility that fuel capsules may break open either due to changes in the bedrock or leaks due to corrosion, which it is estimated would take about a million years.

The committee points out that the spent fuel, plutonium, is so poorly suited to the manufacture of nuclear weapons that subsequent generations will scarcely regard it as an economic source of plutonium to make weapons any more so than do potential terrorists.

In Sweden they spend about 100 million kronas a year for research on the permanent disposal of nuclear waste. It is estimated that it would cost from 600 million to a billion kronas to build a "burial cave" for the fuel.

Nuclear Waste Disposal Plans Reviewed

Helsinki HELSINGIN SANOMAT in Finnish 24 Mar 87 p 14

[Article: "Bedrock Structure and Ground Water Movements Being Determined for Disposal of Nuclear Waste; Even Small Leaks Must Be Found"]

[Text] On 10 November 1983 the Council of State reached a decision in principle on the handling of nuclear waste. In it shipping spent nuclear fuel out of the country was set as a primary objective. However, the power companies must also be prepared to ultimately dispose of spent fuel in Finland, complying with the requirements of safety and environmental protection.

Producers of nuclear power are obligated to bear responsibility for the handling of nuclear waste and for the studies made in connection with that. Since the Imatra Power Company (IVO) sends the nuclear waste from its Loviisa units to the Soviet Union, the decision in principle primarily affects the Industrial Power Company (TVO). Its two nuclear reactors at Olkiluoto will generate a total of about 1,300 tons of spent fuel during its operational life, 3 to 4 percent of which will be highly radioactive.

The Council of State's principled decision was largely based on a statement the Geological Research Center issued in the summer of 1983. In the statement they said that sites suited to the permanent disposal of highly radioactive nuclear waste are likely to be found in Finland's bedrock. The basis for the statement was the Geological Research Center's own and international studies.

Objectives Blessed by the Government

If Olkiluoto's nuclear waste is disposed of in Finland's bedrock, it must be retained as a premise of the plan that permanent disposal should begin about the year 2000. Before then spent fuel will be temporarily stored on the plant grounds.

After the Council of State's principled decision, the TVO set in motion geological studies of the bedrock in over 300 areas. Research institutes in that field, technical universities and private firms have participated in them. The Radiation Safety Center supervises these studies.

At the end of 1985 the TVO submitted 101 sites for further studies. In 1986 it had to eliminate 17 sites from its recommendation to the Environment Ministry. The ministry further expressed its hope that [the list] again be shortened by several sites. From five to ten target sites qualified for more detailed disposal site studies.

The TVO will in the near future publicly announce two sites that are to be the first on which it will begin deep drilling operations. The from five to ten blocks of bedrock, each a square kilometer in size, will be studied for a couple of years. This phase will end in 1992.

Two or three sites will be studied in detail between 1993 and the year 2000, and one permanent disposal site will be chosen on the basis of that. Besides geological factors, communications and land ownership relations will also influence the choice. Furthermore, the site should be uninhabited or sparsely settled.

The site chosen for permanent disposal will meet safety and environmental protection requirements. A technical disposal plan must be drawn up for that purpose. Before construction of the permanent disposal facility, the power companies must be prepared to submit the required plans by the end of 2010 to the supervisory officials, who will grant construction permits.

Burial Site Preparation Will Take Time

According to plan, the nuclear power plant at Olkiluoto will be shut down in 2010. If depositing the spent fuel in bedrock proves to be safe enough and the Radiation Safety Center approves the plans, excavation of the site will begin that same year.

They will begin to bury the nuclear waste in 2020. By 2050 all of the capsules will have been placed in their holes and the grave filled with bentonite clay and crushed stone. After it is sealed, ordinary human activities can be pursued on the site--except for drilling wells.

In 1986 Parliament approved a bill for a new nuclear energy law which is waiting for the blessing of the newly elected Parliament. According to the bill, the planned disposal of spent nuclear fuel in bedrock requires a principled decision by the Council of State. Ultimate realization of the project will, however, require the permission of the local community at the site.

Collection of Billions of Markkas

The TVO, the chief funder of the project, estimates that it would cost over 2.1 billion markkas to insulate the spent fuel in the interior of the rock. In terms of the current value of the markka, this would increase the cost of TVO electricity by about 0.8 of a penni a kilowatt hour.

Since payment of a large part of the costs for the handling of nuclear waste will fall due after the Olkiluoto plants are closed down, the TVO is collecting the funds as a prepayment for nuclear waste included in the price of electricity.

The Trade and Industry Ministry is also funding the studies. In the opinion of many, public funding will provide researchers with a certain "freedom of movement." It will also prepare the owner for the change: If and when the Radiation Safety Center gives its blessing to the permanent disposal of nuclear waste, responsibility for waste will be transferred to the state.

Sweden's Stripa Mine Studied

Helsinki HELSINGIN SANOMAT in Finnish 25 Mar 87 p 16

[Article by Geological Research Center geologist Joukko T. Parviainen]

[Text] A 3-day conference to discuss the burial of nuclear waste in bedrock began in Helsinki on Tuesday. Experts from nine countries are participating in the conference.

The basis for the experts' deliberations is a study begun in 1980 on Sweden's Stripa Mine, one in which Finland is participating to the extent of 7 million markkas.

Located in Central Sweden, Stripa appeared on a map published in the Tuesday edition of HELSINGIN SANOMAT, but this article reporting on the Stripa studies was omitted and, due to a technical error, the report on the situation in Finland appeared twice in the newspaper.

The abandoned iron mine at Stripa in Sweden has stopped rumbling in the void. Inside the rock at a depth of over 300 meters they are conducting a study, the results of which will affect the future of millions of people.

The first chunks of ore were removed from Stripa as early as in the 1400's. At the peak of operations 150 men worked in the depths of the rock and they managed to dig 25 km of shafts and tunnels. However, mining operations came to an end 10 years ago.

The mine has now been transformed into an underground research station. In it they are determining with what kinds of equipment and methods they can reliably study the deep bedrock and the ground water that circulates in it. They will need accurate data over the next few years since many industrial nations are preparing to bury their nuclear waste in the rock.

Sweden's nuclear fuel company, the SKB [Nuclear Energy Development], launched the Stripa project in 1980. The OECD's Nuclear Energy Agency (NEA) is supervising the project. Finland, Sweden, Switzerland, France, Spain and England as well as Japan, Canada and the United States are participating countries. Project costs will come to 100 million kronas, or about 70 million markkas.

From Finland the TVO and IVO nuclear power companies as well as the State Technical Research Center (VTT) are participating in the project. The Finns are participating in the three-phase funding program to the extent of 7 million markkas, of which the TVO is paying three-fifths, the IVO over a fifth and the Trade and Industry Ministry less than a fifth.

Small Ground Water Movements

The nature and structure of the rock as well as determination of the location of fissures will be studied first at Stripa. Second, the nature and movements of the deep ground water will be studied. The third object of study will be the determination of the properties of the bentonite clay to be used as fill material.

Stripa will not be used to bury nuclear waste, only to study the burial technique.

The second phase of the project began in 1983 and has just ended. In it they concentrated on the development of research methods and on tests as well as on a comparison of the different methods. They plan to make the final decision on the detailed research program of the third phase this week in Helsinki.

"Between 1987 and 1991 we will thoroughly investigate the ground water movements in one segment of the rock. A 75 x 25-meter test area has been excavated in the rock from which water samples will be collected from each square meter," VTT Nuclear Power Technology Laboratory researcher Kari Rasilainen said. He is a regular member of the Technical Committee.

Results Expected As Early As This Year

"Three holes have been drilled in the upper part of the test site, through which we will insert two kinds of tracers. One kind will behave like radioactive materials and will therefore tend to be retained in the fissures. The other kind, on the other hand, will flow with the ground water."

According to Rasilainen, the test will reveal both ground water movements in the granite and the retention of radioactive materials. They expect to have the results of the tests before the year is out.

We Finns have been actively participating in the project. The VTT has also received reports from the Geological Research Center and the Radiation Safety Center," Rasilainen boasted. "We have already monitored the first tracer tests. We have criticized the shortcomings and presented improvement proposals. In this way the methods have been improved."

Benefit Gained by Finns

Rasilainen said that Finnish views and hopes have been raised at Technical Committee meetings. Geologist Timo Aikas of the TVO is the other Finnish member of the committee. As for Aikas, he emphasized that the benefit to be gained from Stripa will come from the experiments with equipment and methods.

"Although the rock of the site is very reminiscent of our granite bedrock, the results obtained do not as such apply to the situation in Finland. Here every disposal site must nevertheless be studied in detail," Aikas said.

Aikas hopes that the Stripa project will provide better means than before for studying deep bedrock structure and the nature and movements of ground water.

"Disposal site studies demand hitherto unheralded accuracy and reliability. Through a hole drilled to a depth of hundreds of meters we must be able to measure how many drops of water trickle out of a fissure only big enough for a wire to go through."

Many Kinds of Equipment Tests

The Stripa project offers many manufacturers an opportunity to test their equipment. From Finland the Vibrometric Company has participated in these tests. Under the guidance of physicist Calin Cosma, it has developed a device that produces a three-dimensional "hologram" of the rock. The technique is based on the fact that shock waves move through undamaged bedrock differently than they do through fissured bedrock.

The TVO has developed up-to-date equipment in Finland by means of which water can be studied even in holes drilled to a depth of a kilometer. The equipment has been tested in Luvia and proven to be reliable. According to Aikas, the cost of the equipment along with the tests came to nearly 2 million markkas.



Key:

1. Stockholm.
2. Sweden.

Finland Studying Skoldvik Mine

Helsinki HELSINGIN SANOMAT in Finnish 27 Mar 87 p 11

[Article by Kari Kiuru: "Neste Is Drilling a Repository in the Rock at Skoldvik; 50 Houses of Parliament Would Fit into the Cave"]

[Text] Porvoo (HS)—Neste's [state oil company] piece of bedrock at Skoldvik is beginning to look like a Swiss cheese. Tunnels as long as 12 km in length and a total of 5.2 million cubic meters of underground storage space have been carved out of Finnish bedrock.

Fifty buildings the size of the House of Parliament would fit into the underground cave. If the excavated area were a highway tunnel, it would extend from Porvoo to Helsinki and back.

Neste has chiefly stored crude oil in the rock repositories. At the most, the cave will hold 3 million tons of crude oil. The remaining space is intended for fuel oil storage and petrochemical products.

Skoldvik got its first rock repositories 20 years ago and excavations are still going on. To be sure, the work is now coming to an end, but they have been assuring us of this for the past 10 years now. Plenty of the old bedrock can, of course, still be found at Skoldvik.

"We have mapped out repositories for the storage of from 5 to 7 million tons in addition to the present ones. We can, of course, still go down here as far as we like," Neste's chief geologist, Stig Johansson, assured us.

The rock has already been excavated to quite a depth. Work on a repository intended for the storage of two petrochemical products is at present in the final phase. It will have a total of 150,000 cubic meters of space and will cost roughly 100 million markkas.

Assistant General Manager's Address Buried

The workers who are working on the latest repositories celebrated their contract on Thursday. On an occasion corresponding to a drink to seal the bargain, a few square meters of the bottom of the repository were tarred and the daily newspapers and names of the most important participants in the celebration lowered to the bottom. Later generations will in their time have a chance to read, for example, Neste assistant general manager Risto Nummila's 60th-anniversary address from out of the cylinder.

The repositories now nearing completion are the deepest that have been cut into the rock at Skoldvik. "Technically, the excavation is no easier or harder than it was before. The hauling equipment has, however, had a hard time of it since the grade of the slope over which the material is hauled is 14 percent. The hauling distance to the surface is 1,200 meters," said construction contractor Pertti Salminen, who has been on the Neste rock repository jobsite right from the start.

"As If We Had Gone to Heaven"

The visit to the bowels of the earth was an experience for Neste's own people too. "It was as if we had gone to heaven. At first, there was a gentle slope, then torches and at a distance from them the light became brighter. After a while, a trumpet sounded and finally we were served champagne," Neste fire chief Kauno Hannunen described the sensation.

Hannunen took the cork of a champagne bottle with as a souvenir of the trip. "I've drunk wine before, of course, but not at a depth of 160 meters. It should be removed so that they can't complain that litter has gotten in with the fuel," Hannunen mused.

The tarring of the bottoms of the latest repositories was apparently a common occurrence for the craftsmen of the industry. The repositories were christened U-23 and U-24. Once the necessary pipeline and equipment are installed, the natural gas condensate to be imported from the Soviet Union can flow underground next December.

Work on the rock at Skoldvik will not end with that. A natural gas branch line from Helsinki to Skoldvik is to be installed and that will also require excavation. An agreement has been reached with the Soviet Union on the doubling of natural gas condensate imports during the present decade.

More Work Promised

Since more material is to be imported, more storage facilities will also be needed. Neste has also made preparations for the cold storage of petrochemical products. Winter and summer, there is a constant temperature of 10 degrees in the present cave, but the shipping temperature for some petrochemical products is tens of degrees below zero.

Over a period of 10 years Neste has also been trying to sell the know-how it has accumulated in building rock repositories to foreign countries. The results make the marketing people smile wryly. They thought their know-how would sell easily in Norway and Scotland. The results have, however, been meager.

Finnish rock construction experts' know-how was, on the other hand, good enough for Japan. Only what happened was that the Japanese built their repository themselves with the aid of Korean planning and labor. The Finns learned how one ought not to operate on the Japanese market.

11,466

CSO: 5100/2434

GOVERNMENT CARRIES OUT NUCLEAR TEST AT MURUROA

BK210529 Hong Kong AFP in English 0454 GMT 21 May 87

[Text] Wellington, May 21 (AFP) — France has carried out its second underground nuclear test of the year at Mururoa in the South Pacific, New Zealand Government seismologists said Thursday.

The seismologists said a 30-kilotonne blast was triggered under the atoll test site at 5 05 New Zealand time Thursday (1700 GMT May 20).

The first test of the year on May 5 had a yield of five kilotonnes (the equivalent of 5000 tonnes of TNT).

New Zealand Government seismologist Warwick Smith said Thursday's blast was the 84th underground test by France at Mururoa since 1975, when underground testing first began there.

He said another one or two tests were expected in coming weeks.

Mr Smith said new equipment used in monitoring the tests was providing "very good data" for New Zealand scientists.

Money for the equipment came from the compensation paid by France after its agents sank the environmental vessel *Rainbow Warrior* in Auckland Harbour.

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CSO: 5100/2448

FRANCE

WEST EUROPE

BRIEFS

NUCLEAR REACTOR SHUT DOWN--There was a failure in the nuclear power plant in Cattenom. The number one reactor of this plant of the Ardennes was turned off this morning. According to the control services, the water that escaped from the primary circuit of the reactor will have no affect on the public health or the environment. The communique of the technical services does not specify when the reactor will be used again. [Text] [Paris Domestic Service in French 2100 GMT 23 May 87 LD] /9274

CSO: 5100/2448

ASSEMBLY RATIFIES NONPROLIFERATION TREATY

LD161258 Madrid Domestic Service in Spanish 1200 GMT 16 Jun 87

[Excerpts] The Congress of Deputies has just unanimously authorized ratification of the treaty on the nonproliferation of nuclear weapons put forth by the government. One hundred and thirty-two countries have already committed themselves to this treaty, which was signed in Moscow, London, and Washington in 1968, pledging not to store, produce, or install nuclear weapons and, additionally, to hold talks to bring about an end to the arms race.

The unanimity and contentment of all the parliamentary groups was clear, despite the fact that two opposing votes were registered, perhaps erroneously [passage omitted]

As soon as the treaty is ratified, the United Left said that it will call for the denuclearization of the Iberian Peninsula; Popular Alliance will propose that the sovereignty of the Congress should be guaranteed in the case of a nuclear crisis. Herrero de Monon [Popular Alliance figure] referred to the desirability of the treaty also being adhered to by the countries of the Maghreb, Libya, Morocco, and Tunisia, arguing that this is desirable for Spain.

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CSO: 5100/2449

CONTROVERSY, CONCERN OVER RADIATION CONTINUE

'Reconciliation' Over Differences Announced

Istanbul CUMHURIYET in Turkish 11 Mar 87 pp 1,11

[Gunseli Onal report]

[Text] Ankara--Minister of Industry and Trade Cahit Aral announced that a "reconciliation" will be reached between the Turkish Atomic Energy Agency (TAEK) and faculty members of the Middle East Technical University [METU] over their differences on radiation levels in tea and its effect on public health. Describing both institution as "venerable," Aral said: "I believe that we will soon publish an identical--or common--view signed jointly by both institutions." Stating that the publication of the two views with a joint signature would not be difficult, Aral said: "We can present to you a view that incorporates both views with joint signatures."

Aral discussed the radiation issue with journalists at the inauguration of Sekerbank's new art gallery yesterday. During the conversation, Aral was asked whether the Turkish powdered milk shipped to the United Arab Emirates was refused because it was contaminated by radiation. Aral ended the "speech ban" he imposed on himself a while ago, and after appearing irked by the question initially he said: "Please gentlemen, close this matter."

High Radioactivity Reported in Hazelnuts

Istanbul DUNYA in Turkish 11 Mar 87 p 3

[Text] Trabzon--Analysis of 3,844 sample batches of hazelnuts has revealed that a quarter of the batches contain radiation levels higher than the limits specified by the EEC.

According to a statement issued by the Black Sea Hazelnut Products Exporters' Association, since the beginning of October 3,955 sample batches of hazelnuts were sent to the Kucukcekmece Nuclear Research Center and 3,844 of these were tested for radioactive contamination.

The results of the analysis showed that 2,740 of the samples contained less than 600 becquerels of radioactivity and that the remaining 1,104 samples contained more than 600 becquerels of radioactivity.

Among the samples sent from Giresun, Bulancak, Ordu, Fatsa, Unye, Terme, Samsun, Trabzon, Gorele and Tirebolu, those from Ordu, Bulancak, Giresun, Gorele and Tirebolu were found to contain high levels of radioactivity.

One batch of hazelnuts sent from Ordu was found to contain 1,418 becquerels of radioactivity. Among the other samples, one from Bulancak was found to contain a maximum of 1,407 becquerels and one from Gorele was determined to contain 1,203 becquerels of radioactivity.

Egypt Bans Turkish Products

Istanbul DUNYA in Turkish 12 Mar 87 pp 1,7

[Text] Cairo--Egypt banned the importation of tea, soap and detergent from Turkey on grounds that they are contaminated with high levels of radiation and carcinogenic substances.

The semi-official daily, AL-AHRAM, reported that the government has halted the importation of tea, soap and detergent from Turkey until further notice.

It was stated that the decision to halt the said imports came following charges by the opposition party, Wafd, that Turkish teas contain high levels of radioactivity and that Turkish soaps and detergents contain carcinogenic substances.

Following this decision, Turkish tea, soap and detergent were added to the list of goods whose importation is banned.

Egypt imports 70 percent of its food.

9588

CSO: 5100/2438

BRIEFS

RADIATION CONTAMINATED TEA DESTROYED--Ankara (HURRIYET)--A decision has been made at last on the question of the tea produce in Rize, which was affected by high radiation as a result of the accident at the Soviet Union's Chernobyl nuclear power plant. The Supreme Coordination Council for Radiation Security, headed by Minister of Industry and Trade Cahit Aral, has decided to destroy 40,000 tons of tea. Officials of the tea growers association has formed the decision as "political," and asserted that most of the 1986 produce will be destroyed. [Excerpt] [Istanbul HURRIYET in Turkish 10 Jun 87 pp 3, 12 NC] /9274

JAPAN IMPORTED HIGH-RADIATION SAGE--Adana (MIL-HA)--A high rate of radiation was found in the sage we exported to Japan. The Japanese Health Ministry announced that extremely high radioactive contamination was found in 4 tons of sage imported from Turkey which had a becquerel rate of 1198, whereas the acceptable limit is 370. The Turkish Embassy informed the Foreign Ministry of the announcement. Turkish exporters were warned and informed that it is absolutely necessary to take radiation measurements of exported agricultural products and not to exceed the limits set by the destination country. The contaminated sage is the third incident of radiation contamination in agricultural products exported to Japan, according to information obtained. It was reported during the same announcement that thyme exported to Japan from France also had a high radiation count. [Text] [Istanbul MILLIYET in Turkish 28 Apr 87 p 14] 8349

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